

 **FILE**



June 3, 2010

Mr. Dean Yasuda  
Environmental Engineer  
Department of Ecology, NW Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, Washington 98008-5452

**RE: TRANSMITTAL OF TANK CLOSURE REPORT  
ALASKAN COPPER WORKS – PASSIVATION TANK  
3600 EAST MARGINAL WAY FACILITY, SEATTLE, WASHINGTON**

Dear Mr. Yasuda:

On behalf of Alaskan Copper Works (ACW), Landau Associates, Inc. (Landau Associates) is transmitting the enclosed Tank Closure Report for the passivation tank located at the ACW facility at 3600 East Marginal Way in Seattle, Washington. This report documents the closure activities of the passivation tank conducted by Clean Harbors Environmental Services, Inc. in August 2009, including the evacuation and disposition of waste materials from the tank and secondary containment area, cleaning of the tank and secondary containment area, and subsurface sampling activities.

As noted in the report, the actions performed satisfy regulatory requirements for “closure” of the physical passivation tank unit under WAC 173-303-640(8); however, soil contaminated above the cleanup performance standards [Model Toxics Control Act (MTCA) Method B cleanup levels for unrestricted land use] remains at the site which cannot currently be removed due to its location beneath the foundation of the building. Based on the location of the contaminated soil beneath the building and lack of evidence that groundwater is being impacted due to the presence of the soil, there is no apparent threat to human health or the environment. Therefore, it is ACW’s intention to complete post-closure soil removal activities at such time as the facility is closed, or operational changes occur that would allow post-closure activities to be reasonably conducted.

ACW requests a review of this report and a response from the Washington State Department of Ecology (Ecology) regarding completion of tank closure activities and leaving contaminated soil in place until such time as post-closure activities can be reasonably completed. We respectfully request that this response be provided within 1 month of receipt of this letter and report. ACW and Landau Associates would be happy to meet with Ecology if this would help to clarify the contents of the report or ACW’s intentions for post-closure activities. Please feel free to contact us at your convenience if you would like to schedule a meeting or if you need any additional information.

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LANDAU ASSOCIATES, INC.

Papa Rock

Cc: James Brown (ACW), Gerald Thompson (ACW), Jeff Kray (Marten Law)

Enclosure

**Tank Closure Activities Report  
Alaskan Copper Works  
3600 East Marginal Way  
Seattle, Washington**

June 1, 2010

Prepared for

**Alaskan Copper Works  
Seattle, Washington**



**LANDAU  
ASSOCIATES**

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## 1.0 INTRODUCTION

This tank closure report was prepared on behalf of Alaskan Copper Works (ACW) and describes passivation tank system closure activities conducted by Clean Harbors Environmental Services, Inc. (CHES) in August 2009 at the ACW property located at 3600 East Marginal Way in Seattle, Washington (site; Figure 1). This report provides a summary explanation of the various aspects of closure work along with verification test results of selected surfaces and subsurface soils consistent with the goals set forth in the draft tank closure plan (CHES 2009a) and regulatory performance standards [i.e., Model Toxics Control Act (MTCA) Method B cleanup levels for unrestricted site use]. This report also describes disposition of waste generated from site corrective actions.

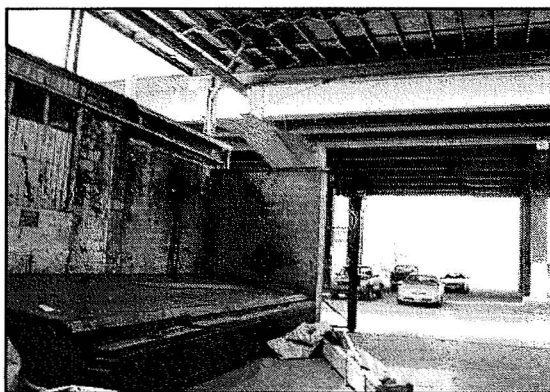
This report contains the following attachments:

- Confirmation sampling and testing data is provided in Appendix A.
- Project notes are contained in Appendix B.
- Waste Management Unit waste disposition records are provided in Appendix C.

### 1.1 SITE DESCRIPTION AND BACKGROUND

The site consists of a large industrial building with a covered central access courtyard/receiving area where the passivation tank was located (Figure 2 and Photo 1). The passivation tank is an approximately 2,800-gallon fiberglass tank with steel shell and support members that was housed in a roughly 3,200-gallon concrete secondary containment area. The tank has an open top with cover.

Photo 1: Passivation tank and surrounding former process area.



Prior to 1992, ACW operations and activities at the site consisted of metal servicing which involved manufacturing and fabrication of corrosion-resistant alloy products for distribution to a variety of clients and industries. Primary activities conducted at the ACW facility included:

1. Metals fabrication to meet a variety of customer specifications.
2. Metals passivation and prep for fabrication.

3. Welding and cutting of various metals and alloys.
4. Storage and utilization of chemicals used in the manufacturing and fabrication of various metals and alloys.

The passivation tank was used to passivate steel through submersion of stainless steel pieces into a nitric/hydrofluoric acid solution to remove entrained iron giving the steel a high level of corrosion resistance. As described in the most recent wastewater discharge permit application for the facility (Appendix C), the passivation process utilized:

- Nitric acid (10 percent) bath in the tank for passivating
- Ammonium bifluoride as an additive to the nitric bath
- Caustic Soda (sodium hydroxide – 50 percent) as a neutralizer.

Additionally, the permit application indicates that the passivation process generated wastewater from drag out from the bath containing copper, nickel, chromium, and zinc.

According to ACW representatives, no reportable or significant spills or releases (greater than 5 gallons) of hazardous chemicals, petroleum, or antifreeze had occurred at this location since ACW began operations at the site.

ACW discontinued operations at the site in August of 1992, but retains ownership of the site and maintains it as a potential backup location for passivation if the main ACW operation at 3200 6<sup>th</sup> Avenue South were to be disrupted. The industrial building is currently divided into various rental suites that are used primarily as art studios.

## **1.2 NOTIFICATIONS AND SUBMITTALS**

On May 21, 2009, ACW received a written notice from the Washington State Department of Ecology (Ecology) indicating that the results of an onsite inspection at 3600 East Marginal Way determined the presence of an abandoned tank system containing what appeared to be a regulated waste. The notice called for an immediate closure based on applicable closure subject to the requirements of the Washington Administrative Code (WAC) 173-303-640(8).

CHES, of Braintree, Massachusetts with an office located in SeaTac, Washington, was retained by ACW to provide assistance in determining a course of action for ACW and to prepare a written response to Ecology.

On June 21, 2009, CHES responded back to Ecology (CHES 2009b) indicating specific steps ACW would take and a general timeline needed to perform and complete corrective actions.

ACW had requested that the passivation tank be kept intact for purposes of maintaining an industrial discharge permit. CHES incorporated decontamination procedures into a draft closure plan so that if the tank could be successfully decontaminated it could be left on site. The Ecology staff expressed

concern regarding the final disposition of the passivation tank and stated that even if the tank could be cleaned to a satisfactory level it would still have to meet current engineering standards before being placed back into operation.

On July 22, 2009, CHES submitted a written closure plan, sampling plan, and safety plan (CHES 2009a) to Ecology. The closure plan addressed above ground cleanup objectives and included a limited subsurface investigation to assess potential environmental impact attributed to past passivation processes. In a subsequent meeting with Ecology, summarized in a letter from CHES to ACW (CHES 2009c), Ecology expressed no significant concerns, clearing CHES to proceed with the tank closure without review or pre-approval.

On August 7, 2009, and with authorization from ACW, CHES commenced cleanup of the passivation tank system.

## 2.0 CLOSURE ACTIONS

The following sections summarize closure activities performed, including passivation tank and secondary containment area cleaning and decontamination and confirmation sampling.

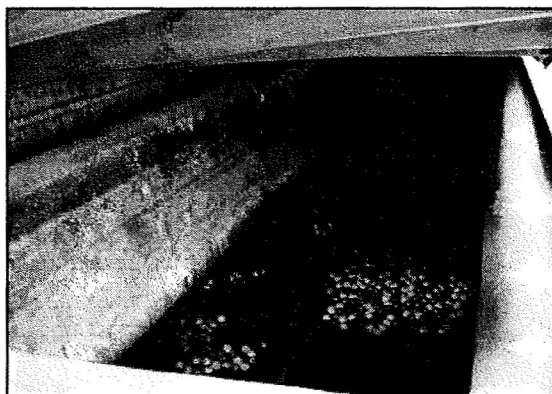
### 2.1 PASSIVATION TANK INTERIOR DECONTAMINATION

On August 7, 2009, CHES commenced site operations with an ACW representative in attendance starting with a safety meeting to discuss safety issues, personal protective equipment (PPE) use, daily tasks, and personnel job assignments. Safety meetings were conducted daily thereafter and recorded in the project daily log (Appendix B).

The interior surface of the passivation tank was inspected for leaks, holes, or evidence of exterior corrosion. It was determined that the existing fiberglass tank cover did not have adequate structural strength to allow for decontamination, so the cover was cut up and placed into lined 1-cubic yard waste boxes.

The tank interior was found to contain several cubic yards of solid debris including wood, plastic balls, metal, grit, and plastic parts which were removed and placed into lined 1-cubic yard waste boxes. Each box was properly labeled and marked pending waste profiling and final disposal permitting. Photo 2 shows the interior contents of the tank prior to evacuation.

Photo 2: Passivation tank interior  
before corrective actions.



The tank interior also contained several inches of sludge and free liquid which, for safety reasons, was handled separately by applying a solution of sodium bicarbonate<sup>1</sup> to neutralize the acidity of the sludge and free liquids as well as to neutralize exposed tank interior surfaces.

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<sup>1</sup> Project log refers to sodium bicarbonate as "sodium bi-sulfite". This is an error in product description. No sodium bisulfite was used during closure activities.



Free liquids were mechanically pumped directly into 275-gallon poly shipping totes. Each tote was then labeled and marked pending waste profiling and final disposal permitting. Photo 3 shows the interior of the tank after removal of its contents.

Photo 3: Tank interior  
after removal of sludge, free  
liquids, and debris.



The tank interior was then pressure washed several times using hot water and applying a solution of sodium bicarbonate and a degreasing solution. Each application was given time to soak before continuing washing procedures.

Spent wash solution was then mechanically pumped directly into 275-gallon poly totes. Power washing was terminated after removing visual evidence of physical contamination.

A final clean water rinse was then performed on the tank interior using a power washer. Rinsate was mechanically pumped directly into 275-gallon poly totes. All totes were labeled and marked pending waste profiling and final disposal permitting.

## **2.2 TANK INTERIOR DECONTAMINATION CONFIRMATION SAMPLING AND TESTING**

A confirmation rinsate sample (TIR-1) and duplicate (TIR-1 DUP) were collected during final rinsing to determine the effectiveness of decontamination and submitted for analytical testing to Test America, located in Tacoma, Washington.

Table 1 provides a summary of analytes tested and analytical results for rinsate samples from tank interior surfaces. Test results indicate that hexavalent chromium was detected in the rinsate at concentrations up to 28 parts per million (ppm) and that the rinsate from the tank interior surfaces exhibited acidic characteristics (i.e., pH 1.9).

If the tank is determined to be structurally competent and will be reused, additional tank interior neutralization should be performed to reduce acidic leaching. Application of a reducing agent such as a sodium metabisulfite solution should reduce or completely eliminate the presence of remaining hexavalent chromium. Alternatively, relining the interior of the tank could be used to encapsulate residual contamination. *Note that any future use of the tank will be as a process unit, not for storage of dangerous waste.*

If the tank is not reused and is disposed, appropriate Toxicity Characteristic Leaching Procedure (TCLP) testing of the tank will be conducted to determine appropriate disposition of the tank.

### 2.3 TANK EXTERIOR DECONTAMINATION

After completing interior cleaning, the tank was lifted out of the containment area and wrapped in plastic. The tank was placed into a temporary containment pad along the west side of the containment area. The tank exterior bottom and sides were found to be coated with a 1- to 1½-inch layer of foam insulation which appeared to be in an advanced state of deterioration. The foam insulation was also found saturated with acid salts as determined through field pH testing.

The foam insulation was then stripped off and placed into lined 1-cubic yard boxes. After stripping off the foam insulation, a sodium bicarbonate solution was applied to the tank exterior surfaces and allowed to soak before washing and final rinsing.

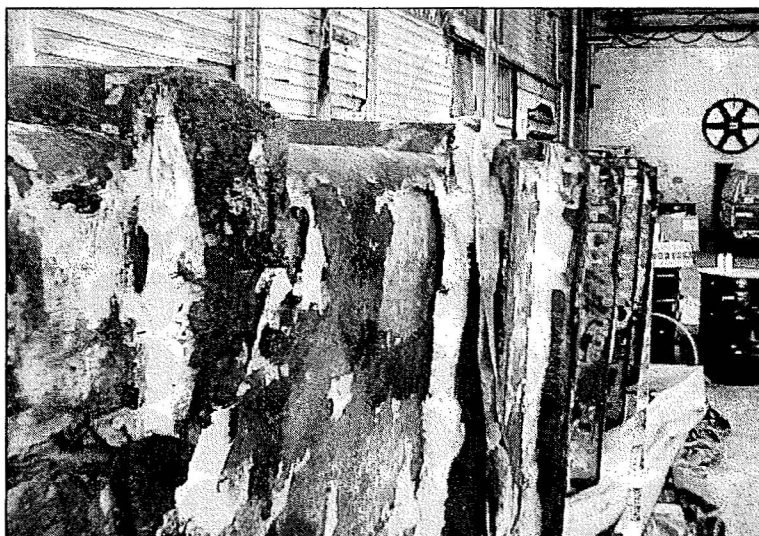


Photo 4: Tank shown in temporary containment during insulation removal and exterior neutralization processing.

Wash water and rinsate were pumped directly into 275-gallon poly totes. Each tote was then labeled and marked pending waste profiling and final disposal permitting. Photo 4 shows the condition of the tank exterior during the foam insulation removal process.

#### 2.4 TANK EXTERIOR DECONTAMINATION CONFIRMATION SAMPLING AND TESTING

A confirmation rinsate (TER-1) sample was collected to determine the effectiveness of exterior surface decontamination and submitted for testing. Table 1 provides a summary of analytes tested and analytical results for the rinsate sample from the tank exterior surfaces. Test results indicate that the closure plan cleanup performance standards have been achieved for this portion of work.

#### 2.5 TANK SYSTEM CONTAINMENT DECONTAMINATION

Following the removal of the passivation tank, the containment area was inspected and found to be partially filled with wood, plastic balls, grit, and debris. A concrete lined trench running lengthwise at the center of the containment area floor along with several large sections of the containment area floor and walls were found to be heavily corroded.

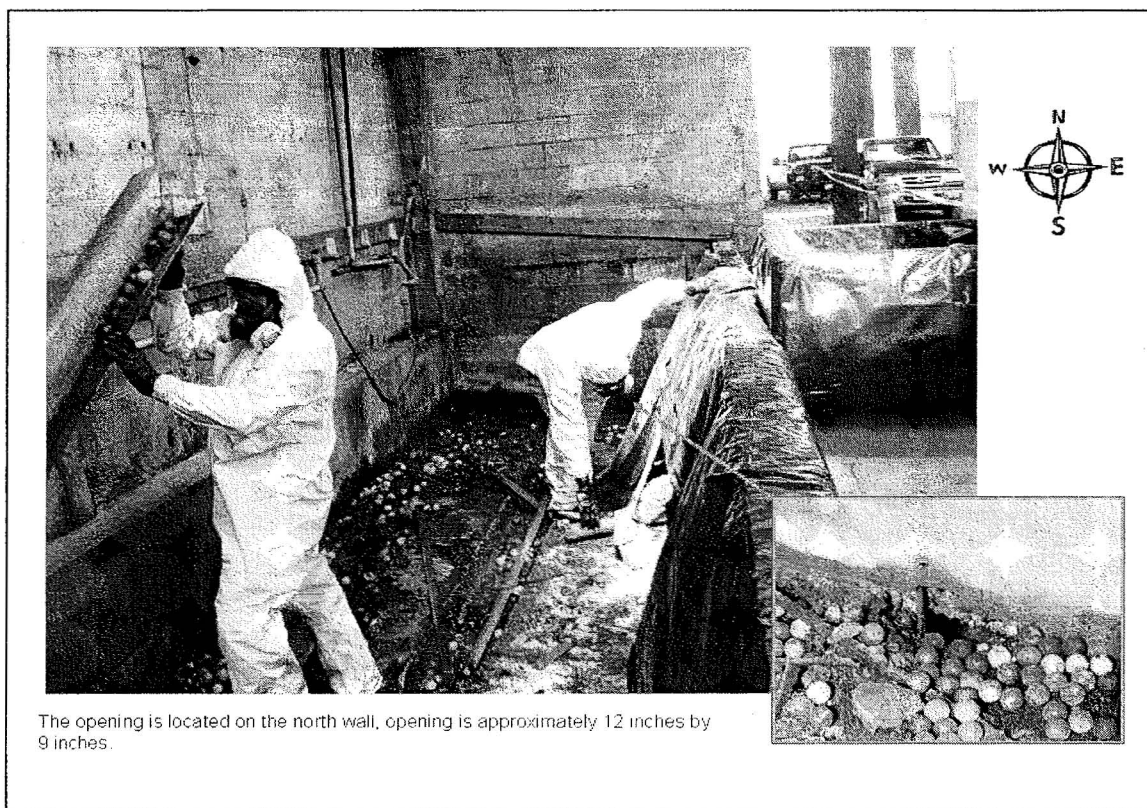


Photo 5: Tank containment area during cleanup. Inset shows hole discovered in northern wall.

During inspection, a hole measuring approximately 12 inches by nine inches was discovered along the base of the north wall of the containment area. The hole appeared to penetrate to the subgrade under the building concrete floor.<sup>2</sup> Photo 5 shows the condition of the containment area during initial cleaning and an enlargement of the discovered hole.

Several cubic yards of solid material and debris were removed from the containment area and placed into lined 1-cubic yard boxes. The boxes were labeled and marked pending final waste profiling and disposal permitting.

After removal of debris, a sodium bicarbonate solution was sprayed on the containment area floor and allowed to soak. The small hole along the north base of the containment floor was temporarily covered and the floor was power washed several times with hot water and mild non-phosphate detergent solution. Wash water was pumped directly into 275-gallon totes.

A clean water final rinse was then performed with rinsate pumped directly into 275-gallon totes labeled and marked pending final waste profiling and disposal permitting.

The corroded condition of the containment floor is shown in photos 6 and 7.

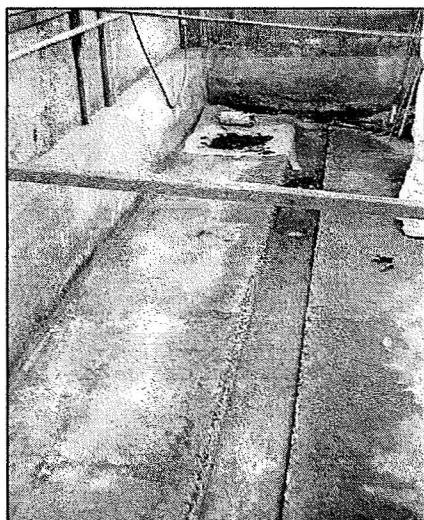


Photo 6: View of containment floor and central trench looking north.

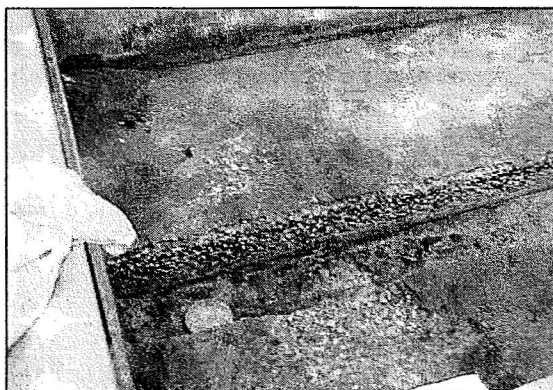


Photo 7: View of south end of containment floor and central trench.

## 2.6 CONTAINMENT AREA CONFIRMATION SAMPLING AND TESTING

After completing a final rinse of the passivation tank containment area floor and walls, concrete chip samples were collected at various locations inside the containment area. Figure 3 shows specific

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<sup>2</sup> The CHES daily log for 8/12/09 indicates a separate investigation conducted of facility underground vaults and crawl spaces at the request of Ecology but is not part of the closure plan or tank closure activities and is not described in this closure report.

concrete chip sampling locations. A background facility floor concrete chip sample was also collected outside the containment area and beyond what was determined to be the passivation process area for comparison with confirmation chip sampling results. The sections below describe the results of the chip sampling.

#### **2.6.1 Containment Area Rinsate Sampling and Testing**

A final rinsate sample (TPR-1) was collected to determine the effectiveness of exterior surface decontamination and submitted for testing. Figure 3 shows the specific location of the final rinsate sample location. Table 1 provides a summary of analytes tested and analytical results for the rinsate sample from the tank containment area. Test results indicate that hexavalent chromium was detected in the containment area rinsate at a concentration of 21 ppm.

Application of a reducing agent such as a sodium metabisulfite solution could be used to reduce or completely eliminate the presence of hexavalent chromium. Although not above any regulated level, additional tank interior neutralization could be used to reduce the relatively acidic conditions identified (i.e., pH of the rinsate sample was 2.75).

#### **2.6.2 Containment Area Chip Sampling Results**

Results from concrete chip samples TPFC-1 and TPFC-1 DUP, taken from the containment area floor, and TPWC-1, taken from the west wall of the containment area, are shown in Table 2. Sample results identified arsenic at the highest level of 290 ppm (above the performance standard of 7 ppm), selenium at 260 ppm (above the performance standard of 5.2 ppm), and hexavalent chromium at 200 ppm (above the performance standard of 18 ppm).

Repeated decontamination processing using an acid wash to remove heavy metals and reducing of hexavalent chromium using sodium metabisulfite could be used in an attempt to meet the performance standards for the concrete containment; however, this may not be possible if the aggregate or cement in the concrete is the source of the contamination (e.g., for arsenic). Alternately, if the containment area is to be reused as secondary containment, the floor and walls would need to be repaired and should be coated with an epoxy or other coating system compatible with the acid solution and other chemicals present in the process. The coating would also serve to encapsulate residual contamination.

If the secondary containment area is ever demolished, appropriate TCLP testing of the construction materials (concrete) should be conducted to determine appropriate disposition of the demolition material.



### **2.6.3 Background Chip Sampling Results**

Table 2 shows test results for the background chip sample (TPBC-1), which indicates that levels for metals meet the cleanup performance standards except for arsenic, which was detected at a concentration of 11 ppm (above the performance standard of 7 ppm), and selenium, which was detected at a concentration of 5.7 ppm (above the performance standard of 5.2 ppm). Although the confirmation chip sampling results contained arsenic and selenium concentrations above these "background" concentrations, neither of these metals are known to have been used or generated in the passivation process, and their presence in the background samples indicate that they may be present in the concrete or present due to historical industrial activities at the facility or vicinity.

## **2.7 SUBSURFACE INVESTIGATIVE SAMPLING AND TESTING**

A soil sample (TPNW-1) was collected from soils within the hole discovered in the secondary containment unit. Additionally, concrete cores were drilled through the north end, center, and south end of the secondary containment area in order to collect subsurface soil samples. Subsurface soil samples (TP-1, TP-2, and TP-3) were collected from these three locations, respectively, and from various depths underneath the containment area floor. Figure 3 identifies the specific subsurface soil sampling locations. A fourth boring (BG-1) was cored and sampled south of the containment area (Figure 2), at a location determined to be outside of the passivation process area, in order to compare results with background subsurface soil quality. The sections below describe the results from the subsurface sampling.

Note that groundwater was not encountered during the boring activities and no sampling or analysis of groundwater was included in the investigation.

### **2.7.1 Background Subsurface Soil Sampling and Testing**

Test results for background subsurface samples from boring (BG-1), shown in Table 3, indicate levels for metals in subsurface soils outside the passivation process area meet the cleanup performance standards in each sample interval down to approximately 74 inches below the facility concrete floor, except for selenium, which was detected in every sample at concentrations ranging from 12 to 20 ppm (above the performance standard of 5.2 ppm); arsenic, which was detected in the 6-inch sample at 10 ppm (above the performance standard of 7 ppm); and copper, which was detected in the 39-inch sample at 290 ppm (above the performance standard of 262 ppm). These results indicate that subsurface soils at the site contain relatively high background concentrations of selenium that are consistently above the cleanup performance standard. Copper and arsenic also appear to be present in soils at variable background concentrations that may exceed the cleanup performance standard.

Note that much of the area in the vicinity of the site has a long history of industrial use and filling of the historic tide flats and "background" soil conditions, including contaminants and contaminant concentrations, can be very heterogeneous.

### **2.7.2 Subsurface Soil Sampling Results**

Results from sample TPNW-1, shown in Table 4, which was collected from soil within the hole discovered in the north end of the containment area, identified an arsenic concentration of 680 ppm (above the performance standard of 7 ppm), and a selenium concentration of 190 ppm (above the cleanup performance standard of 20 ppm).

Results from the various sampling intervals in boring TP-1 (north end), shown in Table 4, identified arsenic above the cleanup performance standard of 7 ppm, and selenium above the cleanup performance standard of 20 ppm in each interval sampled. Arsenic was detected at concentrations as high as 210 ppm at a depth of 3 feet below the containment area floor and selenium concentrations as high as 42 ppm, at a depth of 1 foot below the containment area floor.

Results from the various sampling intervals in boring TP-2 (middle), shown in Table 5, identified selenium above the performance standard at each interval sampled. Lead was detected at a concentration of 300 ppm (above the cleanup performance standard of 250 ppm) at a depth of 9 inches, and copper was detected at 460 ppm (above the cleanup performance standard of 262 ppm) in the 15-inch sample. Arsenic was only detected above the 7 ppm cleanup standard, at 8.7 ppm, in the duplicate sample at a 15-inch depth.

Results from the various sampling intervals in boring TP-3 (south end), shown in Table 6, again identified selenium above the performance standard at each interval sampled. Hexavalent chromium was detected at a concentration of 26 ppm (slightly above the cleanup performance standard of 18 ppm) at a depth of 12 inches, and copper was detected in the 12-inch and 36-inch samples at concentrations as high as 330 ppm. Arsenic was only detected above the 7 ppm cleanup standard, at 7.3 ppm, in the duplicate sample at a 6-inch depth.

### 3.0 WASTE DISPOSITION

Solid waste generated from cleanup, decontamination, surface cleaning, and sampling actions consisted of wood, metal, plastic, foam insulation grit, and impacted refuse. Solids wastes were containerized into bulk cubic yard boxes and 55-gallon drums. Passivation solution was collected and containerized into liquid bulk totes.

The summary list below shows waste volumes generated from each closure activity along with associated manifest document number, transporter, and disposal facility information. Appendix C contains copies of shipping documents and supporting waste profile information.

Waste Stream	Amount (gallons or unit)	Date Shipped and Manifest #	Transporter	Disposal Facility
Neutralized Waste	400 gallons	8-14-09	Clean Harbors,	Clean Harbors Grassy
Passivation solution		002690985FLE	SeaTac, Washington	Mountain Facility
Neutralized Waste	75 gallons	8-21-09	Clean Harbors,	Clean Harbors Kimball
Passivation solution		002692768FLE	SeaTac, Washington	Nebraska Incinerator
Neutralized Waste	30 gallons	9-15-09	Clean Harbors,	Clean Harbors Grassy
Passivation solution		002692834FLE	SeaTac, Washington	Mountain Facility
Contaminated Solids	2750 lbs	8-14-09	Clean Harbors,	Clean Harbors Kimball
		002690986FLE	SeaTac, Washington	Nebraska Incinerator
Contaminated Solids	1200 lbs	8-21-09	Clean Harbors,	Clean Harbors Kimball
		002692768FLE	SeaTac, Washington	Nebraska Incinerator



## 4.0 CONCLUSIONS

Passivation tank system closure activities were conducted at the ACW property located at 3600 East Marginal Way in Seattle, Washington in August 2009. The passivation tank and secondary containment area were successfully evacuated of waste materials and cleaned out, and waste materials were removed and properly disposed of at appropriately certified offsite disposal facilities. These actions, thereby, satisfy regulatory requirements for "closure" of the physical passivation tank under WAC 173-303-640(8).

Based on subsurface soil sampling beneath the passivation tank secondary containment area, soil beneath the secondary containment area was identified as containing various metals, including arsenic, copper, hexavalent chromium, and lead, at concentrations above the cleanup performance standards (MTCA Method B cleanup levels for unrestricted land use). No groundwater sampling was conducted during confirmation sampling activities; however, soil sampling results indicate that soil concentrations tend to decrease with depth and selenium was the only metal detected above the performance standard near the anticipated depth of the groundwater table. Additionally, because the entire site is covered by the building or pavement, leaching due to precipitation is not anticipated to be occurring at the site and groundwater contamination due to any potential release from the passivation tank or secondary containment area is also not anticipated.

Selenium was the only metal detected above the performance cleanup standard in every subsurface soil sample and the only metal detected at a concentration above the performance standard at a depth of 74 inches. The selenium concentrations; however, generally appear consistent with site background concentrations (see Section 2.7.1). Because selenium is not known to have been used or generated in the passivation process and its presence is consistent throughout the study area, selenium detected in the soil samples beneath the containment area does not appear to be the result of a release from the passivation tank area.

The location and the concentrations of other metals (e.g., copper and lead) that were detected above the cleanup performance standard in discrete sample locations in the middle and south end of the containment area or the background location, but not outside or proximate to the hole in the north end, suggest that these observed concentrations are also indicative of "background" soil concentrations resultant from historical industrial activities at the facility or vicinity, and not the result of a release from the passivation tank area.

Although arsenic is not known to have been used or generated by the passivation process, based on the relatively high concentrations of arsenic in the soil samples collected from the hole in the northern wall of the containment area and the boring beneath the north end of the containment area (as compared to the

samples further south), arsenic contamination in this area may be due to a release from the secondary containment area. The nitric acid used in the passivation process could have spilled into the concrete containment pit, and the relatively high arsenic concentrations identified in concrete (Table 2) could have come from acid dissolving the concrete and associated compounds or by leaching the arsenic out of the concrete. The acid solution then might have been released into subsurface soils through the hole. Alternately, the concentrations observed in this area may simply be due to historic industrial use or filling in the area.

Due to the nature and location of the subsurface contamination, which includes the area beneath the exterior foundation of the building, completion of final post-closure activities (i.e., removal of contaminated soils that may be attributed to a release from the passivation tank secondary containment area, containing arsenic concentrations above the MTCA Method B cleanup level for unrestricted land use) cannot be reasonably completed at this time without endangering the structural integrity of the building and creating conditions that would be incompatible with continued operation of the site. However, activities designed to promote further use of the tank containment area (i.e., repairing and coating of the secondary containment unit) would also serve the secondary functions of providing encapsulation of residual metals in the concrete containment area, and containment of subsurface contaminated soils. The repaired and coated concrete containment structure and the building slab would thus prevent direct human contact with, and potential leaching from, subsurface soils until such time as final post-closure activities can be performed. ACW is prepared to complete post-closure activities at such time as facility closure occurs, or operational changes occur that would allow post-closure activities to be reasonably conducted.

Based on the test results described above, as part of a future removal action, it is estimated that approximately 15 to 20 cubic yards of impacted soil would need to be removed below the northern end of the footprint of the containment area floor and northern wall of the facility in order to meet the cleanup performance standard for arsenic. Hexavalent chromium was detected above the cleanup performance standard in only one sample from beneath the middle of the containment area (which may or may not be attributable to a release from the containment area); however, chromium would be addressed as part of the soil removal action. Additionally, an estimated 4 to 6 cubic yards of concrete comprising the secondary containment area (containing arsenic, selenium, and hexavalent chromium) would be demolished, tested, and appropriately disposed during the soil removal action.

As indicated above, groundwater contamination resulting from potential releases from the passivation tank and secondary containment is not expected to be present; therefore, no groundwater cleanup is anticipated to be necessary as part of future cleanup actions.

## 5.0 LIMITATIONS

Landau Associates prepared this tank closure report for the exclusive use of Alaskan Copper Works pertaining to the Alaskan Copper Works site located at 3600 East Marginal Way in Seattle, Washington. Any use of this report by others, or for purposes other than intended, is at the user's sole risk. Within the limitations of scope, schedule, and budget, our services have been conducted in accordance with generally accepted practices of the environmental profession; no other warranty, express or implied, is made as to the professional advice included in this report.

LANDAU ASSOCIATES, INC.

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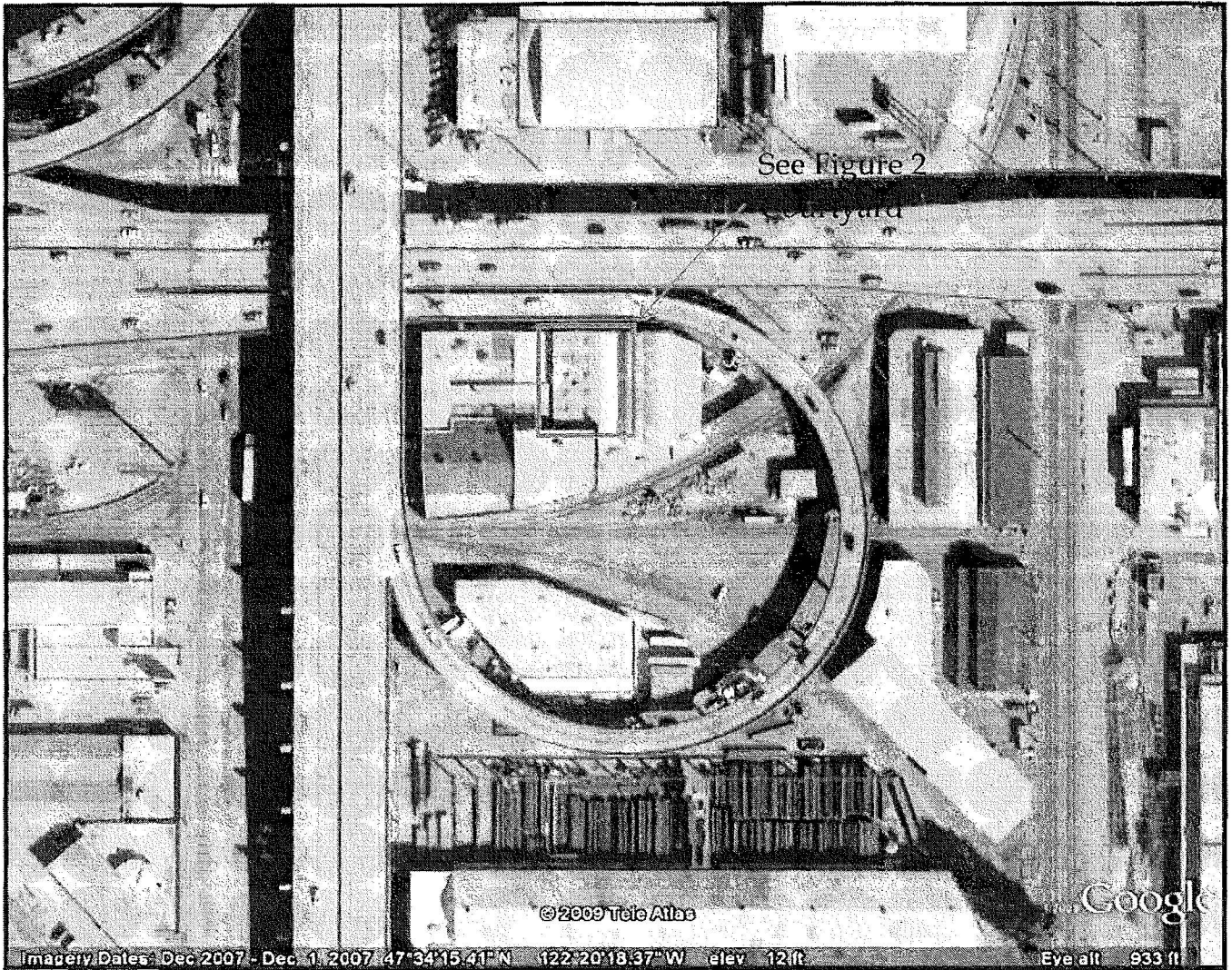
## 6.0 REFERENCES

ACW. 2009. King County Industrial Waste Program, Wastewater Discharge Permit Application. Signed August 28.

CHES. 2009a. *Alaskan Copper (Draft) Dangerous Waste Tank Closure Plan, Tank System Clean Closure Corrective Action Plan*. July 22.

CHES. 2009b. *Letter to Michael Jeffers and Warren Walton (Ecology) RE: Tank System Closure and Post Closure Care 3600 E Marginal Way Response*. June 21.

CHES. 2009c. *Letter to Jim Brown (ACW) RE: Results of Regulatory Interface Tank Closure Discussions with ECOLOGY*. June 23.



Data Source: CleanHarbors Environmental Services

Y:\Projects\1198002\MapDocs\Fig1.mxd 5/19/2010 Unknown

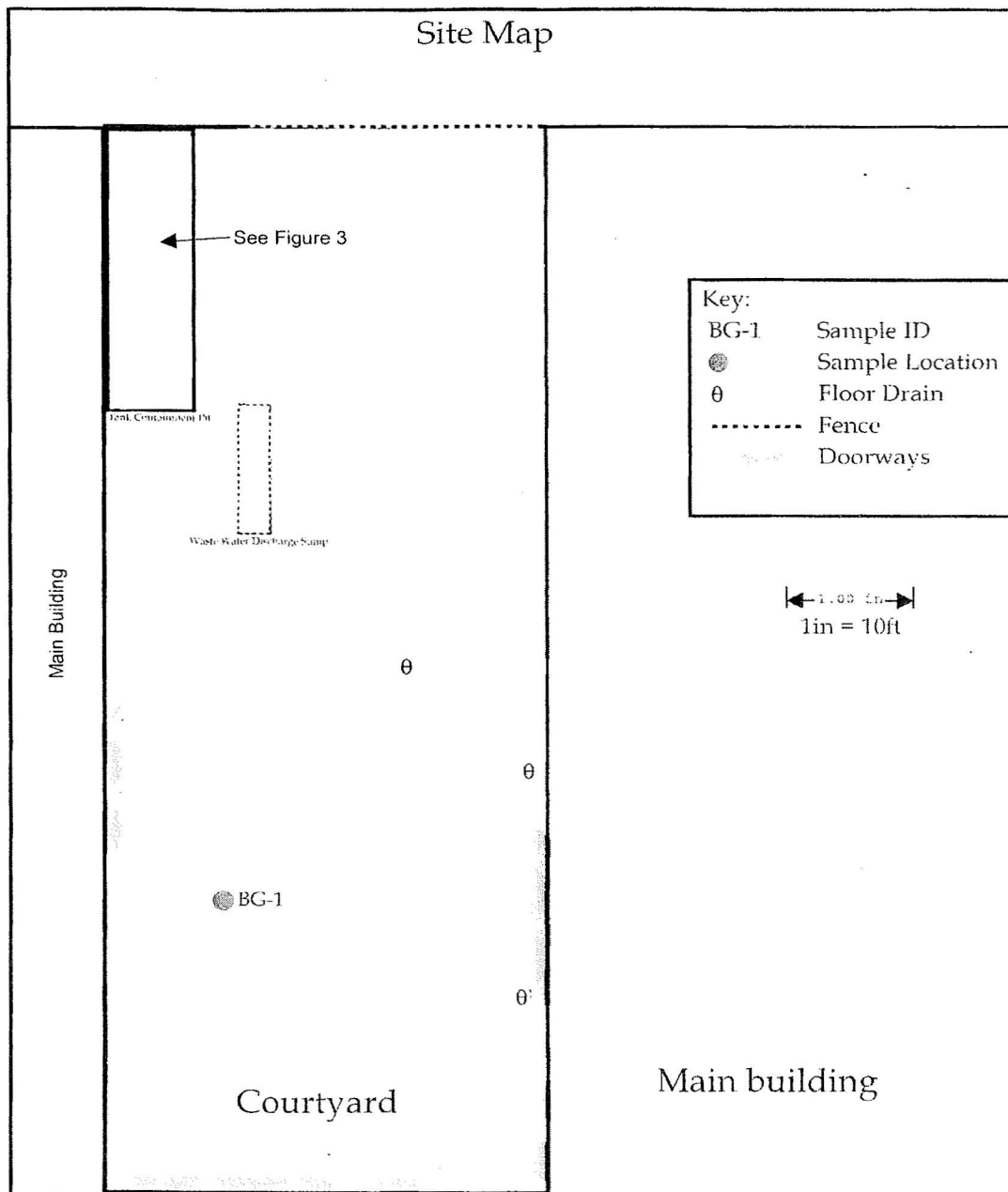


LANDAU  
ASSOCIATES

Alaskan Copper  
Seattle, Washington

Area Map

Figure  
1



Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: CleanHarbors Environmental Services

Alaskan Copper  
Seattle, Washington

Site Map

Figure  
2



Y:\Projects\1198002\MapDocs\Fig3.mxd 5/19/2010 Unknown



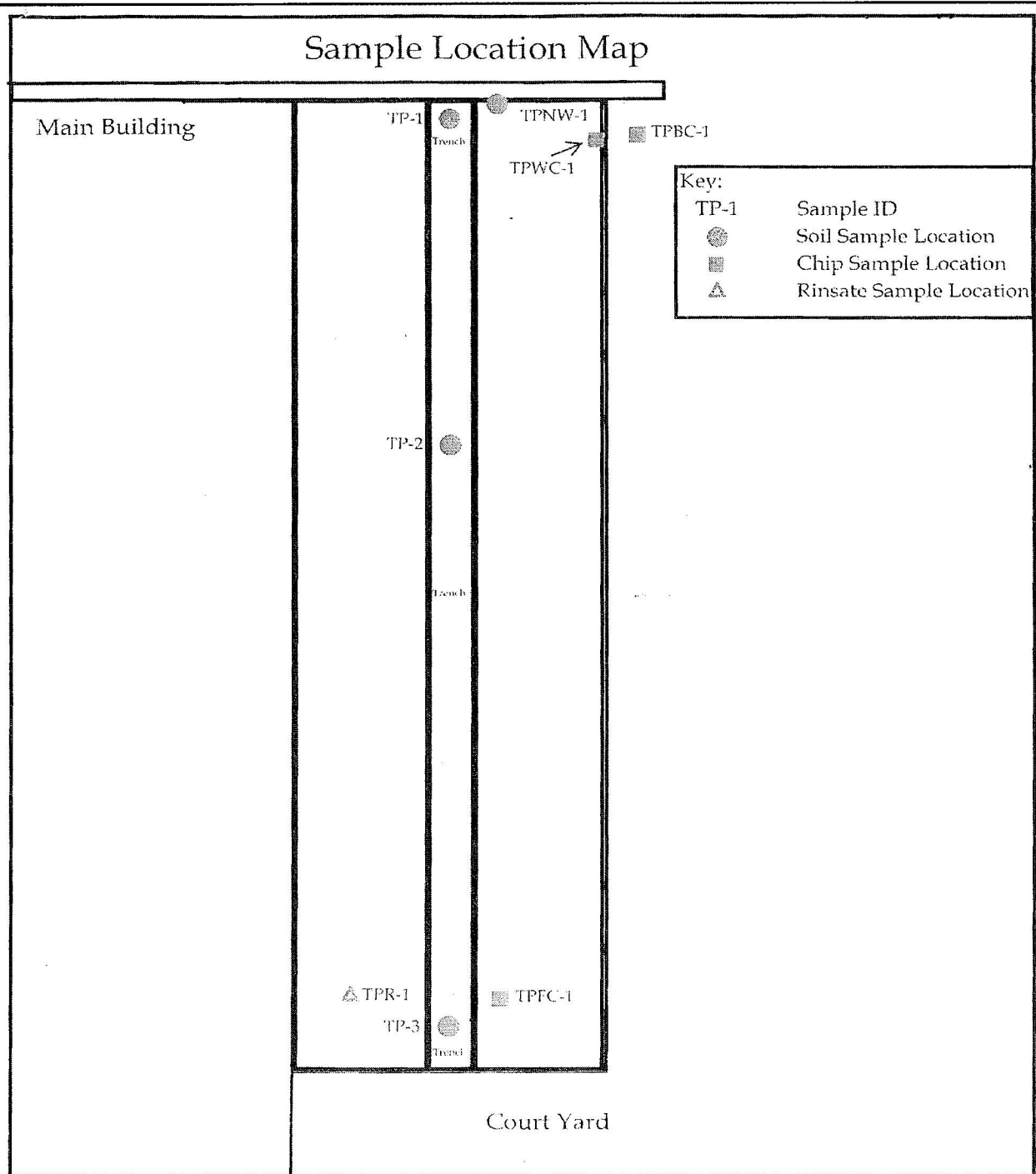
LANDAU  
ASSOCIATES

Data Source: CleanHarbors Environmental Services

Alaskan Copper  
Seattle, Washington

## Sample Location Map

Figure  
**3**



### Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

**TABLE 1**  
**WATER ANALYTICAL RESULTS**  
**TANK RINSATE SAMPLES**  
**ALASKAN COPPER WORKS**  
**SEATTLE, WASHINGTON**

	Tank Interior TIR-1	Tank Interior TIR-1 DUP	Tank Exterior TER-1	Tank Containment Cell TPR-1
<b>DISSOLVED METALS (mg/L)</b>				
Arsenic	ND	ND	ND	ND
Barium	0.26	0.22	0.028	0.28
Cadmium	ND	ND	ND	ND
Chromium III	46	26	5.5	18
Lead	1.2	0.84	0.078	0.46
Selenium	0.15	ND	ND	0.13
Silver	ND	ND	ND	ND
Copper	2.4	1.6	0.29	1.8
Zinc	37	21	3.6	11
Chromium VI	28	17	1.8	21
Mercury	0.0015	0.0007	0.001	0.00041
<b>CONVENTIONALS</b>				
Nitrate (mg/L)	1600	480	2000	740
Fluoride (mg/L)	950	400	200	440
Chloride (mg/L)	4.6	4.3	2.9	4.2
pH (SU)	1.9	3.33	3.47	2.75

ND = Not Detected



**TABLE 2**  
**ANALYTICAL RESULTS**  
**CONCRETE CHIP SAMPLES**  
**ALASKAN COPPER WORKS**  
**SEATTLE, WASHINGTON**

	Regulation	Cleanup Level	Tank Containment Floor TPFC-1	Tank Containment Floor TPFC-1 DUP	Tank Containment West Wall TPWC-1	Background Concrete TPBC-1
<b>TOTAL METALS (mg/kg)</b>						
Arsenic	MTCA Method B*	7	200	290	81	11
Barium	MTCA Method B	1648	88	87	60	10
Cadmium	MTCA Method B*	1	ND	0.84	ND	ND
Chromium III	MTCA Method B*	120,000	2,300	4,300	740	4.2
Lead	MTCA Method A**	250	40	31	30	5.1
Selenium	MTCA Method B	5.2	120	260	27	5.7
Silver	MTCA Method B	14	ND	ND	ND	ND
Copper	MTCA Method B	262	100	49	52	8.4
Zinc	MTCA Method B	5,971	370	300	210	28
Chromium VI	MTCA Method B	18	45	74	200	ND
Mercury	MTCA Method B	2	0.024	0.025	ND	ND
<b>CONVENTIONALS</b>						
Nitrate (S) (mg/L)	MTCA Method B	280,000	2,200	1,900	5,400	68
Fluoride (S) (mg/L)	MTCA Method B	4,800	2,800	1,100	3,100	94
Chloride (S) (mg/L)			5.4	25	43	ND
pH (SU)	EPA Haz Waste	>2 to <12	3.3	3.06	2.83	11.8

S = Soluble

ND = Not Detected

Box = Exceedance of cleanup level.

EPA Hazardous Waste 40CFR 261.22

\* Adjusted for background

\*\* MTCA Method A for unrestricted use value used because applicable toxicity data for lead not available to determine Method B

**TABLE 3**  
**ANALYTICAL RESULTS**  
**BACKGROUND SUBSURFACE SAMPLES**  
**ALASKAN COPPER WORKS**  
**SEATTLE, WASHINGTON**

	Regulation	Cleanup Level	Background BG-1 6"	Background BG-1 30"	Background BG-1 30" DUP	Background BG-1 39"
<b>TOTAL METALS (mg/kg)</b>						
Arsenic	MTCA Method B*	7	10	ND	ND	ND
Barium	MTCA Method B	1,648	31	43	36	35
Cadmium	MTCA Method B*	1	ND	ND	ND	ND
Chromium III	MTCA Method B*	120,000	20	55	190	510
Lead	MTCA Method A**	250	5.7	2.6	1.8	33
Selenium	MTCA Method B	5.2	12	14	14	20
Silver	MTCA Method B	14	ND	ND	ND	ND
Copper	MTCA Method B	262	24	33	34	290
Zinc	MTCA Method B	5,971	41	46	24	53
Chromium VI	MTCA Method B	18	0.57	1	12	11
Mercury	MTCA Method B	2	ND	ND	ND	ND
<b>CONVENTIONALS</b>						
Nitrate (S) (mg/L)	MTCA Method B	280,000	0.62	12	8.5	3.6
Fluoride (S) (mg/L)	MTCA Method B	4,800	2.5	27	12	68
Chloride (S) (mg/L)	---	---	5.5	6.8	4.8	6.8
pH (SU)	EPA Haz Waste	>2 to <12	9.09	5.23	6.64	7.98

S = Soluble

ND = Not Detected

Box = Exceedance of cleanup level.

EPA Hazardous Waste 40CFR 261.22

\* Adjusted for background

\*\* MTCA Method A for unrestricted use value used because applicable toxicity data for lead not available to determine Method B value.

**TABLE 4**  
**ANALYTICAL RESULTS**  
**NORTH END SUBSURFACE SAMPLES**  
**ALASKAN COPPER**  
**SEATTLE, WASHINGTON**

	Regulation	Cleanup Level	Trench North TP-1 12"	Trench North TP-1 20"	Trench North TP-1 20" DUP	Trench North TP-1 36"	Trench North TP-1 74"	Tank Containment North Wall TPNW-1
<b>TOTAL METALS (mg/kg)</b>								
Arsenic	MTCA Method B*	7	94	74	72	210	6.2	680
Barium	MTCA Method B	1,648	48	24	41	28	21	50
Cadmium	MTCA Method B*	1	ND	ND	ND	ND	ND	ND
Chromium III	MTCA Method B*	120,000	990	730	750	750	240	2,500
Lead	MTCA Method A**	250	8.4	6.1	6	21	3.8	15
Selenium	MTCA Method B	5.2	42	35	34	35	12	190
Silver	MTCA Method B	14	ND	ND	ND	ND	ND	ND
Copper	MTCA Method B	262	46	16	14	12	38	18
Zinc	MTCA Method B	5,971	52	28	27	18	84	45
Chromium VI	MTCA Method B	18	2.1	2	1.9	2	1.6	8.2
Mercury	MTCA Method B	2	0.032	0.023	ND	0.039	ND	0.2
<b>CONVENTIONALS</b>								
Nitrate (S) (mg/L)	MTCA Method B	280,000	82	40	43	12	32	340
Fluoride (S) (mg/L)	MTCA Method B	4,800	1,100	1,600	1,500	910	310	880
Chloride (S) (mg/L)	---	---	7.3	ND	ND	ND	6.6	ND
pH (SU)	EPA Haz Waste	>2 to <12	6.67	5.78	5.98	4.61	4.86	3.37

S = Soluble

ND = Not Detected

Box = Exceedance of cleanup level.

EPA Hazardous Waste 40CFR 261.22

\* Adjusted for background

\*\* MTCA Method A for unrestricted use value used because applicable toxicity data for lead not available to determine Method B value.

**TABLE 5**  
**ANALYTICAL RESULTS**  
**MIDDLE SUBSURFACE SAMPLES**  
**ALASKAN COPPER WORKS**  
**SEATTLE, WASHINGTON**

	Regulation	Cleanup Level	Trench Center TP-2 9"	Trench Center TP-2 15"	Trench Center TP-2 15" DUP	Trench Center TP-2 36"
<b>TOTAL METALS (mg/kg)</b>						
Arsenic	MTCA Method B*	7	5.6	4.6	8.7	ND
Barium	MTCA Method B	1,648	61	110	140	28
Cadmium	MTCA Method B*	1	ND	0.67	0.71	ND
Chromium III	MTCA Method B*	120,000	52	20	16	75
Lead	MTCA Method A**	250	300	180	130	11
Selenium	MTCA Method B	5.2	17	8.5	6.5	9.5
Silver	MTCA Method B	14	ND	ND	ND	ND
Copper	MTCA Method B	262	230	460	410	83
Zinc	MTCA Method B	5,971	480	420	350	120
Chromium VI	MTCA Method B	18	5.9	0.33	ND	4.9
Mercury	MTCA Method B	2	ND	0.095	0.073	0.03
<b>CONVENTIONALS</b>						
Nitrate (S) (mg/L)	MTCA Method B	280,000	100	530	540	93
Fluoride (S) (mg/L)	MTCA Method B	4,800	100	10	10	150
Chloride (S) (mg/L)	---	---	5.2	4.4	4.3	ND
pH (SU)	EPA Haz Waste	>2 to <12	9.45	5.38	4.83	5.85

S = Soluble

ND = Not Detected

Box = Exceedance of cleanup level.

EPA Hazardous Waste 40CFR 261.22

\* Adjusted for background

\*\* MTCA Method A for unrestricted use value used because applicable toxicity data for lead not available to determine Method B value.

**TABLE 6**  
**ANALYTICAL RESULTS**  
**SOUTH END SUBSURFACE SAMPLES**  
**ALASKAN COPPER WORKS**  
**SEATTLE, WASHINGTON**

	Regulation	Cleanup Level	Trench South TP-3 6"	Trench South TP-3 6" DUP	Trench South TP-3 12"	Trench South TP-3 36"
<b>TOTAL METALS (mg/kg)</b>						
Arsenic	MTCA Method B*	7	6.8	7.3	5.7	ND
Barium	MTCA Method B	1,648	34	45	130	42
Cadmium	MTCA Method B*	1	ND	ND	ND	ND
Chromium III	MTCA Method B*	120,000	100	40	720	170
Lead	MTCA Method A**	250	63	32	220	110
Selenium	MTCA Method B	5.2	11	11	18	10
Silver	MTCA Method B	14	ND	ND	ND	ND
Copper	MTCA Method B	262	190	130	330	270
Zinc	MTCA Method B	5,971	150	140	160	65
Chromium VI	MTCA Method B	18	7.1	5.9	26	2.9
Mercury	MTCA Method B	2	ND	ND	0.11	0.25
<b>CONVENTIONALS</b>						
Nitrate (S) (mg/L)	MTCA Method B	280,000	68	55	44	7.7
Fluoride (S) (mg/L)	MTCA Method B	4,800	55	49	74	14
Chloride (S) (mg/L)	---	---	3.7	ND	3.8	4.6
pH (SU)	EPA Haz Waste	>2 to <12	8.11	8.33	8.29	5.65

S = Soluble

ND = Not Detected

Box = Exceedance of cleanup level.

EPA Hazardous Waste 40CFR 261.22

\* Adjusted for background

\*\* MTCA Method A for unrestricted use value used because applicable toxicity data for lead not available to determine Method B value.

## Laboratory Analytical Data

## ANALYTICAL REPORT

Job Number: 580-15035-1

Job Description: CleanHarbors-SEATAC

For:

Clean Harbors Environmental Services Inc  
19320 Des Moines Memorial Dr  
Bldg D, Suite 400  
Seatac, WA 98148

Attention: Shawn Estrada



Approved for release.  
Heather Curbow  
Project Manager I  
9/4/2009 5:26 PM

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Heather Curbow  
Project Manager I  
heather.curbow@testamericainc.com  
09/04/2009  
Revision: 1

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The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424

Tel (253) 922-2310 Fax (253) 922-5047 [www.testamericainc.com](http://www.testamericainc.com)



## ANALYTICAL REPORT

Job Number: 580-15035-1

Job Description: CleanHarbors-SEATAC

For:

Clean Harbors Environmental Services Inc  
19320 Des Moines Memorial Dr  
Bldg D, Suite 400  
Seatac, WA 98148

Attention: Shawn Estrada



Approved for release.  
Heather Curbow  
Project Manager I  
9/4/2009 5:26 PM

---

Heather Curbow  
Project Manager I  
heather.curbow@testamericainc.com  
09/04/2009  
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**Job Narrative**  
**580-J15035-1**

**Comments**

No additional comments.

**Receipt**

All samples were received in good condition within temperature requirements.

**Metals**

No analytical or quality issues were noted.

**General Chemistry**

Method(s) 300.0:

The following samples required a dilution which was performed outside of the analytical holding time: 15035-1-10, 15-20.

No other analytical or quality issues were noted.

## METHOD SUMMARY

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Description	Lab Location	Method	Preparation Method
<b>Matrix: Solid</b>			
Metals (ICP)	TAL TAC	SW846 6010B	
Preparation, Metals	TAL TAC		SW846 3050B
Chromium, Hexavalent	TAL TAC		SW846 7195
Mercury (CVAA)	TAL TAC	SW846 7471A	
Preparation, Mercury	TAL TAC		SW846 7471A
Anions, Ion Chromatography	TAL TAC	MCAWW 300.0	
Anions, Ion Chromatography	TAL TAC	MCAWW 300.0	
Deionized Water Leaching Procedure	TAL TAC		ASTM DI Leach
Deionized Water Leaching Procedure	TAL TAC		ASTM DI Leach
pH	TAL TAC	SW846 9045C	
Percent Moisture	TAL TAC	EPA Moisture	
<b>Matrix: Water</b>			
Metals (ICP)	TAL TAC	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL TAC		SW846 3005A
Chromium, Hexavalent	TAL TAC		SW846 7195
Mercury (CVAA)	TAL TAC	SW846 7470A	
Preparation, Mercury	TAL TAC		SW846 7470A
Anions, Ion Chromatography	TAL TAC	MCAWW 300.0	
Anions, Ion Chromatography	TAL TAC	MCAWW 300.0	
pH	TAL TAC	SW846 9040B	

### Lab References:

TAL TAC = TestAmerica Tacoma

### Method References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## SAMPLE SUMMARY

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-15035-1	TPBC-1	Solid	08/19/2009 1715	08/20/2009 0920
580-15035-2	TPFC-1 DUP	Solid	08/19/2009 1517	08/20/2009 0920
580-15035-3	TPFC-1	Solid	08/19/2009 1515	08/20/2009 0920
580-15035-4	TPWC-1	Solid	08/19/2009 1520	08/20/2009 0920
580-15035-5	TIR-1 DUP	Water	08/19/2009 1447	08/20/2009 0920
580-15035-6	TER-1	Water	08/19/2009 1425	08/20/2009 0920
580-15035-7	TPR-1	Water	08/19/2009 1455	08/20/2009 0920
580-15035-8	TIR-1	Water	08/19/2009 1445	08/20/2009 0920
580-15035-9	TPNW-1	Solid	08/19/2009 0900	08/20/2009 0920
580-15035-10	TP-1 12"	Solid	08/19/2009 1159	08/20/2009 0920
580-15035-11	TP-1 20"	Solid	08/19/2009 1209	08/20/2009 0920
580-15035-12	TP-1 20" DUP	Solid	08/19/2009 1211	08/20/2009 0920
580-15035-13	TP-1 36"	Solid	08/19/2009 1430	08/20/2009 0920
580-15035-14	TP-1 74"	Solid	08/19/2009 1645	08/20/2009 0920
580-15035-15	TP-2 9"	Solid	08/19/2009 1130	08/20/2009 0920
580-15035-16	TP-2 15"	Solid	08/19/2009 1135	08/20/2009 0920
580-15035-17	TP-2 15" DUP	Solid	08/19/2009 1138	08/20/2009 0920
580-15035-18	TP-2 36"	Solid	08/19/2009 1150	08/20/2009 0920
580-15035-19	TP-3 6"	Solid	08/19/2009 1051	08/20/2009 0920
580-15035-20	TP-3 6" DUP	Solid	08/19/2009 1053	08/20/2009 0920
580-15035-21	TP-3 12"	Solid	08/19/2009 1100	08/20/2009 0920
580-15035-22	TP-3 36"	Solid	08/19/2009 1115	08/20/2009 0920
580-15035-23	BG-1 6"	Solid	08/19/2009 0945	08/20/2009 0920
580-15035-24	BG-1 30"	Solid	08/19/2009 0951	08/20/2009 0920
580-15035-25	BG-1 30" DUP	Solid	08/19/2009 0952	08/20/2009 0920
580-15035-26	BG-1 39"	Solid	08/19/2009 1005	08/20/2009 0920

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPBC-1

Lab Sample ID: 580-15035-1

Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 08/19/2009 1715

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0396 g

Date Analyzed: 08/26/2009 1414

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		11		3.0
Barium		10		0.50
Cadmium		ND		0.50
Chromium		4.2		1.3
Lead		5.1		1.5
Selenium		5.7		5.0
Silver		ND		0.99
Copper		8.4		0.99
Zinc		28		2.5

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0264 mL

Date Analyzed: 08/27/2009 2256

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		ND		0.27

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5613 g

Date Analyzed: 08/26/2009 1221

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.018

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPFC-1 DUP

Lab Sample ID: 580-15035-2

Date Sampled: 08/19/2009 1517

Client Matrix: Solid

% Moisture: 6.5

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49216	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49116	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0689 g
Date Analyzed:	08/26/2009 1458		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1134			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		290		3.0
Barium		87		0.50
Cadmium		0.84		0.50
Chromium		4300		1.3
Lead		31		1.5
Selenium		260		5.0
Silver		ND		1.0
Copper		49		1.0
Zinc		300		2.5

Method:	6010B	Analysis Batch: 580-49300	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49221	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0808 mL
Date Analyzed:	08/27/2009 2259		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1025			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		74		0.27

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49098	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5037 g
Date Analyzed:	08/26/2009 1243		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 0917			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.025		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPFC-1

Lab Sample ID: 580-15035-3

Date Sampled: 08/19/2009 1515

Client Matrix: Solid

% Moisture: 7.3

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0211 g

Date Analyzed: 08/26/2009 1501

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		200		3.2
Barium		88		0.53
Cadmium		ND		0.53
Chromium		2300		1.4
Lead		40		1.6
Selenium		120		5.3
Silver		ND		1.1
Copper		100		1.1
Zinc		370		2.6

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0324 mL

Date Analyzed: 08/27/2009 2313

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		45		0.28

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5485 g

Date Analyzed: 08/26/2009 1247

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.024		0.020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPWC-1

Lab Sample ID: 580-15035-4

Date Sampled: 08/19/2009 1520

Client Matrix: Solid

% Moisture: 3.2

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0460 g

Date Analyzed: 08/26/2009 1505

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		81		3.0
Barium		60		0.49
Cadmium		ND		0.49
Chromium		740		1.3
Lead		30		1.5
Selenium		27		4.9
Silver		ND		0.99
Copper		52		0.99
Zinc		210		2.5

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0383 mL

Date Analyzed: 08/27/2009 2316

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		200		0.27

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5434 g

Date Analyzed: 08/26/2009 1259

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.019

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TIR-1 DUP

Lab Sample ID: 580-15035-5

Client Matrix: Water

Date Sampled: 08/19/2009 1447

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Preparation: 7195

Dilution: 1.0

Date Analyzed: 08/21/2009 1242

Date Prepared: 08/20/2009 1330

Analysis Batch: 580-48864

Prep Batch: 580-48778

Instrument ID: SEA027

Lab File ID: N/A

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Hexavalent chromium	17	*	0.025

**6010B Metals (ICP)-Total Recoverable**

Method: 6010B

Preparation: 3005A

Dilution: 1.0

Date Analyzed: 08/24/2009 2057

Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49028

Prep Batch: 580-48943

Instrument ID: SEA027

Lab File ID: N/A

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	ND		0.060
Barium	0.22		0.010
Chromium	26		0.025
Lead	0.84		0.030
Selenium	ND		0.10
Silver	ND		0.020
Copper	1.6		0.020
Zinc	21		0.040

Method: 6010B

Preparation: 3005A

Dilution: 100

Date Analyzed: 08/25/2009 1201

Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49036

Prep Batch: 580-48943

Instrument ID: SEA027

Lab File ID: N/A

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Cadmium	ND		1.0

**7470A Mercury (CVAA)**

Method: 7470A

Preparation: 7470A

Dilution: 1.0

Date Analyzed: 08/25/2009 1042

Date Prepared: 08/24/2009 1333

Analysis Batch: 580-49069

Prep Batch: 580-48965

Instrument ID: SEA029

Lab File ID: N/A

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Mercury	0.00070		0.00020



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TER-1

Lab Sample ID: 580-15035-6

Date Sampled: 08/19/2009 1425

Client Matrix: Water

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-48864	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-48778	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/21/2009 1246		Final Weight/Volume:	50 mL
Date Prepared:	08/20/2009 1330			

Analyte	Result (mg/L)	Qualifier	RL
Hexavalent chromium	1.8	*	0.025

**6010B Metals (ICP)-Total Recoverable**

Method:	6010B	Analysis Batch: 580-49028	Instrument ID:	SEA027
Preparation:	3005A	Prep Batch: 580-48943	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/24/2009 2104		Final Weight/Volume:	50 mL
Date Prepared:	08/24/2009 1049			

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	ND		0.060
Barium	0.028		0.010
Cadmium	ND		0.010
Chromium	5.5		0.025
Lead	0.078		0.030
Selenium	ND		0.10
Silver	ND		0.020
Copper	0.29		0.020
Zinc	3.6		0.040

**7470A Mercury (CVAA)**

Method:	7470A	Analysis Batch: 580-49069	Instrument ID:	SEA029
Preparation:	7470A	Prep Batch: 580-48965	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/25/2009 1046		Final Weight/Volume:	50 mL
Date Prepared:	08/24/2009 1333			

Analyte	Result (mg/L)	Qualifier	RL
Mercury	0.0010		0.00020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPR-1

Lab Sample ID: 580-15035-7

Client Matrix: Water

Date Sampled: 08/19/2009 1455

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-48864

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-48778

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 08/21/2009 1249

Final Weight/Volume: 50 mL

Date Prepared: 08/20/2009 1330

Analyte	Result (mg/L)	Qualifier	RL
Hexavalent chromium	21	*	0.025

**6010B Metals (ICP)-Total Recoverable**

Method: 6010B

Analysis Batch: 580-49028

Instrument ID: SEA027

Preparation: 3005A

Prep Batch: 580-48943

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 08/24/2009 2110

Final Weight/Volume: 50 mL

Date Prepared: 08/24/2009 1049

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	ND		0.060
Barium	0.28		0.010
Chromium	18		0.025
Lead	0.46		0.030
Selenium	0.13		0.10
Silver	ND		0.020
Copper	1.8		0.020
Zinc	11		0.040

Method: 6010B

Analysis Batch: 580-49036

Instrument ID: SEA027

Preparation: 3005A

Prep Batch: 580-48943

Lab File ID: N/A

Dilution: 100

Initial Weight/Volume: 50 mL

Date Analyzed: 08/25/2009 1203

Final Weight/Volume: 50 mL

Date Prepared: 08/24/2009 1049

Analyte	Result (mg/L)	Qualifier	RL
Cadmium	ND		1.0

**7470A Mercury (CVAA)**

Method: 7470A

Analysis Batch: 580-49069

Instrument ID: SEA029

Preparation: 7470A

Prep Batch: 580-48965

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 08/25/2009 1051

Final Weight/Volume: 50 mL

Date Prepared: 08/24/2009 1333

Analyte	Result (mg/L)	Qualifier	RL
Mercury	0.00041		0.00020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TIR-1

Lab Sample ID: 580-15035-8

Date Sampled: 08/19/2009 1445

Client Matrix: Water

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-48864	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-48778	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/21/2009 1252		Final Weight/Volume:	50 mL
Date Prepared:	08/20/2009 1330			

Analyte	Result (mg/L)	Qualifier	RL
Hexavalent chromium	28	*	0.025

**6010B Metals (ICP)-Total Recoverable**

Method:	6010B	Analysis Batch: 580-49028	Instrument ID:	SEA027
Preparation:	3005A	Prep Batch: 580-48943	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/24/2009 2116		Final Weight/Volume:	50 mL
Date Prepared:	08/24/2009 1049			

Analyte	Result (mg/L)	Qualifier	RL
Arsenic	ND		0.060
Barium	0.26		0.010
Cadmium	ND		0.010
Chromium	46		0.025
Lead	1.2		0.030
Selenium	0.15		0.10
Silver	ND		0.020
Copper	2.4		0.020
Zinc	37		0.040

**7470A Mercury (CVAA)**

Method:	7470A	Analysis Batch: 580-49069	Instrument ID:	SEA029
Preparation:	7470A	Prep Batch: 580-48965	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	08/25/2009 1055		Final Weight/Volume:	50 mL
Date Prepared:	08/24/2009 1333			

Analyte	Result (mg/L)	Qualifier	RL
Mercury	0.0015		0.00020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TPNW-1

Lab Sample ID: 580-15035-9

Client Matrix: Solid

% Moisture: 20.4

Date Sampled: 08/19/2009 0900

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0480 g

Date Analyzed: 08/26/2009 1508

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		680		3.6
Barium		50		0.60
Cadmium		ND		0.60
Chromium		2500		1.6
Lead		15		1.8
Selenium		190		6.0
Silver		ND		1.2
Copper		18		1.2
Zinc		45		3.0

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0462 mL

Date Analyzed: 08/27/2009 2203

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		8.2		0.32

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5020 g

Date Analyzed: 08/26/2009 1304

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.20		0.025

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-1 12"

Lab Sample ID: 580-15035-10

Date Sampled: 08/19/2009 1159

Client Matrix: Solid

% Moisture: 11.0

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49216	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49116	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0114 g
Date Analyzed:	08/26/2009 1512		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1134			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		94		3.3
Barium		48		0.56
Cadmium		ND		0.56
Chromium		990		1.4
Lead		8.4		1.7
Selenium		42		5.6
Silver		ND		1.1
Copper		46		1.1
Zinc		52		2.8

Method:	6010B	Analysis Batch: 580-49300	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49221	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0453 mL
Date Analyzed:	08/27/2009 2231		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1025			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		2.1		0.29

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49098	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5345 g
Date Analyzed:	08/26/2009 1308		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 0917			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.032		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-1 20"

Lab Sample ID: 580-15035-11

Client Matrix: Solid

% Moisture: 11.8

Date Sampled: 08/19/2009 1209

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49216	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49116	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0389 g
Date Analyzed:	08/26/2009 1515		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1134			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		74		3.3
Barium		42		0.55
Cadmium		ND		0.55
Chromium		730		1.4
Lead		6.1		1.6
Selenium		35		5.5
Silver		ND		1.1
Copper		16		1.1
Zinc		28		2.7

Method:	6010B	Analysis Batch: 580-49300	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49221	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0848 mL
Date Analyzed:	08/27/2009 2235		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1025			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		2.0		0.29

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49098	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5436 g
Date Analyzed:	08/26/2009 1312		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 0917			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.023		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-1 20" DUP

Lab Sample ID: 580-15035-12

Date Sampled: 08/19/2009 1211

Client Matrix: Solid

% Moisture: 10.7

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49216	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49116	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0122 g
Date Analyzed:	08/26/2009 1519		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1134			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		72		3.3
Barium		41		0.55
Cadmium		ND		0.55
Chromium		750		1.4
Lead		6.0		1.7
Selenium		34		5.5
Silver		ND		1.1
Copper		14		1.1
Zinc		27		2.8

Method:	6010B	Analysis Batch: 580-49300	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49221	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0353 mL
Date Analyzed:	08/27/2009 2238		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1025			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		1.9		0.29

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49098	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5557 g
Date Analyzed:	08/26/2009 1316		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 0917			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-1 36"

Lab Sample ID: 580-15035-13

Client Matrix: Solid

% Moisture: 10.9

Date Sampled: 08/19/2009 1430

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0349 g

Date Analyzed: 08/26/2009 1522

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		210		3.3
Barium		28		0.54
Cadmium		ND		0.54
Chromium		750		1.4
Lead		21		1.6
Selenium		35		5.4
Silver		ND		1.1
Copper		12		1.1
Zinc		18		2.7

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0800 mL

Date Analyzed: 08/27/2009 2242

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		2.0		0.29

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5209 g

Date Analyzed: 08/26/2009 1320

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.039		0.022



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-1 74"

Lab Sample ID: 580-15035-14

Date Sampled: 08/19/2009 1645

Client Matrix: Solid

% Moisture: 15.5

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0255 g

Date Analyzed: 08/26/2009 1537

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		6.2		3.5
Barium		21		0.58
Cadmium		ND		0.58
Chromium		240		1.5
Lead		3.8		1.7
Selenium		12		5.8
Silver		ND		1.2
Copper		38		1.2
Zinc		84		2.9

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0766 mL

Date Analyzed: 08/27/2009 2245

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		1.6		0.30

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5627 g

Date Analyzed: 08/26/2009 1325

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-2 9"

Lab Sample ID: 580-15035-15

Date Sampled: 08/19/2009 1130

Client Matrix: Solid

% Moisture: 6.9

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49216

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49116

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0323 g

Date Analyzed: 08/26/2009 1541

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1134

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		6.6		3.1
Barium		61		0.52
Cadmium		ND		0.52
Chromium		52		1.4
Lead		300		1.6
Selenium		17		5.2
Silver		ND		1.0
Copper		230		1.0
Zinc		480		2.6

Method: 6010B

Analysis Batch: 580-49300

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49221

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0367 mL

Date Analyzed: 08/27/2009 2249

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1025

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		5.9		0.28

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49098

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5058 g

Date Analyzed: 08/26/2009 1329

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 0917

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-2 15"

Lab Sample ID: 580-15035-16

Date Sampled: 08/19/2009 1135

Client Matrix: Solid

% Moisture: 19.7

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0163 g
Date Analyzed:	08/26/2009 1644		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		4.6		3.7
Barium		110		0.61
Cadmium		0.67		0.61
Chromium		20		1.6
Lead		180		1.8
Selenium		8.5		6.1
Silver		ND		1.2
Copper		460		1.2
Zinc		420		3.1

Method:	6010B	Analysis Batch: 580-49300	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49221	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0443 mL
Date Analyzed:	08/27/2009 2252		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1025			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		0.33		0.32

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5130 g
Date Analyzed:	08/26/2009 1356		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.095		0.024

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-2 15" DUP

Lab Sample ID: 580-15035-17

Date Sampled: 08/19/2009 1138

Client Matrix: Solid

% Moisture: 22.6

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49217

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49123

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0020 g

Date Analyzed: 08/26/2009 1730

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1215

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		8.7		3.9
Barium		140		0.64
Cadmium		0.71		0.64
Chromium		16		1.7
Lead		130		1.9
Selenium		6.5		6.4
Silver		ND		1.3
Copper		410		1.3
Zinc		350		3.2

Method: 6010B

Analysis Batch: 580-49306

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49237

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0527 mL

Date Analyzed: 08/27/2009 2344

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1244

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		ND		0.33

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49113

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5472 g

Date Analyzed: 08/26/2009 1418

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.073		0.024

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-2 36"

Lab Sample ID: 580-15035-18

Date Sampled: 08/19/2009 1150

Client Matrix: Solid

% Moisture: 8.8

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0588 g
Date Analyzed:	08/26/2009 1734		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		ND		3.1
Barium		28		0.52
Cadmium		ND		0.52
Chromium		75		1.3
Lead		11		1.6
Selenium		9.5		5.2
Silver		ND		1.0
Copper		83		1.0
Zinc		120		2.6

Method:	6010B	Analysis Batch: 580-49306	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49237	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0233 mL
Date Analyzed:	08/28/2009 0012		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1244			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		4.9		0.28

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5395 g
Date Analyzed:	08/26/2009 1422		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.030		0.020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-3 6"

Lab Sample ID: 580-15035-19

Date Sampled: 08/19/2009 1051

Client Matrix: Solid

% Moisture: 6.1

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49217

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49123

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0420 g

Date Analyzed: 08/26/2009 1739

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1215

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		6.8		3.1
Barium		34		0.51
Cadmium		ND		0.51
Chromium		100		1.3
Lead		63		1.5
Selenium		11		5.1
Silver		ND		1.0
Copper		190		1.0
Zinc		150		2.6

Method: 6010B

Analysis Batch: 580-49306

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49237

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0594 mL

Date Analyzed: 08/28/2009 0016

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1244

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		7.1		0.27

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49113

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5565 g

Date Analyzed: 08/26/2009 1435

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.019

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-3 6" DUP

Lab Sample ID: 580-15035-20

Date Sampled: 08/19/2009 1053

Client Matrix: Solid

% Moisture: 6.5

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0599 g
Date Analyzed:	08/26/2009 1743		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		7.3		3.0
Barium		45		0.50
Cadmium		ND		0.50
Chromium		40		1.3
Lead		32		1.5
Selenium		11		5.0
Silver		ND		1.0
Copper		130		1.0
Zinc		140		2.5

Method:	6010B	Analysis Batch: 580-49306	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49237	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0614 mL
Date Analyzed:	08/28/2009 0019		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1244			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		5.9		0.27

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5364 g
Date Analyzed:	08/26/2009 1439		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.020

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-3 12"

Lab Sample ID: 580-15035-21

Date Sampled: 08/19/2009 1100

Client Matrix: Solid

% Moisture: 10.8

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49217

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49123

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0354 g

Date Analyzed: 08/26/2009 1748

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1215

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		5.7		3.2
Barium		130		0.54
Cadmium		ND		0.54
Chromium		720		1.4
Lead		220		1.6
Selenium		18		5.4
Silver		ND		1.1
Copper		330		1.1
Zinc		160		2.7

Method: 6010B

Analysis Batch: 580-49306

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49237

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0690 mL

Date Analyzed: 08/28/2009 0023

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1244

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		26		0.29

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49113

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5307 g

Date Analyzed: 08/26/2009 1443

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.11		0.021



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: TP-3 36"

Lab Sample ID: 580-15035-22

Date Sampled: 08/19/2009 1115

Client Matrix: Solid

% Moisture: 9.9

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0631 g
Date Analyzed:	08/26/2009 1752		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		ND		3.1
Barium		42		0.52
Cadmium		ND		0.52
Chromium		170		1.4
Lead		110		1.6
Selenium		10		5.2
Silver		ND		1.0
Copper		270		1.0
Zinc		65		2.6

Method:	6010B	Analysis Batch: 580-49306	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49237	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0493 mL
Date Analyzed:	08/28/2009 0026		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1244			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		2.9		0.29

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5715 g
Date Analyzed:	08/26/2009 1449		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.25		0.019

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: BG-1 6"

Lab Sample ID: 580-15035-23

Client Matrix: Solid

% Moisture: 6.2

Date Sampled: 08/19/2009 0945

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49217

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49123

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0393 g

Date Analyzed: 08/26/2009 1757

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1215

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		10		3.1
Barium		31		0.51
Cadmium		ND		0.51
Chromium		20		1.3
Lead		5.7		1.5
Selenium		12		5.1
Silver		ND		1.0
Copper		24		1.0
Zinc		41		2.6

Method: 6010B

Analysis Batch: 580-49306

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49237

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0529 mL

Date Analyzed: 08/28/2009 0030

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1244

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		0.57		0.27

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49113

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5041 g

Date Analyzed: 08/26/2009 1454

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: BG-1 30"

Lab Sample ID: 580-15035-24

Date Sampled: 08/19/2009 0951

Client Matrix: Solid

% Moisture: 9.4

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0132 g
Date Analyzed:	08/26/2009 1801		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		ND		3.3
Barium		43		0.54
Cadmium		ND		0.54
Chromium		55		1.4
Lead		2.6		1.6
Selenium		14		5.4
Silver		ND		1.1
Copper		33		1.1
Zinc		46		2.7

Method:	6010B	Analysis Batch: 580-49306	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49237	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0282 mL
Date Analyzed:	08/28/2009 0033		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1244			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		1.0		0.29

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5784 g
Date Analyzed:	08/26/2009 1458		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.019

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: BG-1 30" DUP

Lab Sample ID: 580-15035-25

Client Matrix: Solid

% Moisture: 9.5

Date Sampled: 08/19/2009 0952

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method: 6010B

Analysis Batch: 580-49217

Instrument ID: SEA027

Preparation: 3050B

Prep Batch: 580-49123

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.0520 g

Date Analyzed: 08/26/2009 1816

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1215

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		ND		3.2
Barium		36		0.53
Cadmium		ND		0.53
Chromium		190		1.4
Lead		1.8		1.6
Selenium		14		5.3
Silver		ND		1.1
Copper		34		1.1
Zinc		24		2.6

Method: 6010B

Analysis Batch: 580-49306

Instrument ID: SEA027

Preparation: 7195

Prep Batch: 580-49237

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 5.0473 mL

Date Analyzed: 08/28/2009 0037

Final Weight/Volume: 50 mL

Date Prepared: 08/27/2009 1244

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		12		0.28

**7471A Mercury (CVAA)**

Method: 7471A

Analysis Batch: 580-49213

Instrument ID: SEA029

Preparation: 7471A

Prep Batch: 580-49113

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 0.5287 g

Date Analyzed: 08/26/2009 1502

Final Weight/Volume: 50 mL

Date Prepared: 08/26/2009 1100

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.021

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Client Sample ID: BG-1 39"

Lab Sample ID: 580-15035-26

Date Sampled: 08/19/2009 1005

Client Matrix: Solid

% Moisture: 16.3

Date Received: 08/20/2009 0920

**6010B Metals (ICP)**

Method:	6010B	Analysis Batch: 580-49217	Instrument ID:	SEA027
Preparation:	3050B	Prep Batch: 580-49123	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1.0633 g
Date Analyzed:	08/26/2009 1821		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1215			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Arsenic		3.7		3.4
Barium		35		0.56
Cadmium		ND		0.56
Chromium		510		1.5
Lead		33		1.7
Selenium		20		5.6
Silver		ND		1.1
Copper		290		1.1
Zinc		53		2.8

Method:	6010B	Analysis Batch: 580-49306	Instrument ID:	SEA027
Preparation:	7195	Prep Batch: 580-49237	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	5.0393 mL
Date Analyzed:	08/28/2009 0040		Final Weight/Volume:	50 mL
Date Prepared:	08/27/2009 1244			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Hexavalent chromium		11		0.31

**7471A Mercury (CVAA)**

Method:	7471A	Analysis Batch: 580-49213	Instrument ID:	SEA029
Preparation:	7471A	Prep Batch: 580-49113	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	0.5370 g
Date Analyzed:	08/26/2009 1506		Final Weight/Volume:	50 mL
Date Prepared:	08/26/2009 1100			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.022

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPBC-1

Lab Sample ID: 580-15035-1

Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 08/19/2009 1715

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	68	H	mg/Kg	0.53	5.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 1940				DryWt Corrected: Y
Fluoride-Soluble	94		mg/Kg	3.2	5.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 1940				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/26/2009 2216				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	11.8		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	97		%	0.10	1.0	Moisture
Analysis Batch: 580-48914		Date Analyzed: 08/23/2009 0924				DryWt Corrected: N
Percent Moisture	2.9		%	0.10	1.0	Moisture
Analysis Batch: 580-48914		Date Analyzed: 08/23/2009 0924				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPFC-1 DUP

Lab Sample ID: 580-15035-2

Client Matrix: Solid

% Moisture: 6.5

Date Sampled: 08/19/2009 1517

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	1900	H	mg/Kg	10	100	300.0
Analysis Batch: 580-49352						DryWt Corrected: Y
Fluoride-Soluble	1100		mg/Kg	61	100	300.0
Analysis Batch: 580-49350						DryWt Corrected: Y
Chloride-Soluble	25		mg/Kg	3.4	1.0	300.0
Analysis Batch: 580-49350						DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	3.06		SU	1.0	9045C
Analysis Batch: 580-49076					DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	93		%	0.10	1.0	Moisture
Analysis Batch: 580-48915						DryWt Corrected: N
Percent Moisture	6.5		%	0.10	1.0	Moisture
Analysis Batch: 580-48915						DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPFC-1

Lab Sample ID: 580-15035-3

Client Matrix: Solid

% Moisture: 7.3

Date Sampled: 08/19/2009 1515

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	2200	H	mg/Kg	8.6	100	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 2130				DryWt Corrected: Y
Fluoride-Soluble	2800		mg/Kg	51	100	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 2130				DryWt Corrected: Y
Chloride-Soluble	5.4		mg/Kg	2.8	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/26/2009 2330				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	3.30		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	93		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	7.3		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPWC-1

Lab Sample ID: 580-15035-4

Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 08/19/2009 1520

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	5400	H	mg/Kg	55	500	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 2148				DryWt Corrected: Y
Fluoride-Soluble	3100		mg/Kg	33	50	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 2207				DryWt Corrected: Y
Chloride-Soluble	43		mg/Kg	3.6	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/26/2009 2348				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	2.83		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	97		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	3.2		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

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**General Chemistry****Client Sample ID:** TIR-1 DUP**Lab Sample ID:** 580-15035-5**Date Sampled:** 08/19/2009 1447**Client Matrix:** Water**Date Received:** 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Fluoride	480		mg/L	100	1000	300.0
Analysis Batch: 580-49338 Date Analyzed: 08/28/2009 0547						
Nitrate as N	400	H	mg/L	300	1000	300.0
Analysis Batch: 580-49343 Date Analyzed: 08/28/2009 0547						
Chloride	4.3		mg/L	0.90	1.0	300.0
Analysis Batch: 580-49338 Date Analyzed: 08/27/2009 1445						
Analyte	Result	Qual	Units		Dil	Method
pH	3.33	HF	SU		1.0	9040B
Analysis Batch: 580-49355 Date Analyzed: 08/28/2009 1834						

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TER-1

Lab Sample ID: 580-15035-6

Client Matrix: Water

Date Sampled: 08/19/2009 1425

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Fluoride	2000		mg/L	100	1000	300.0
	Analysis Batch: 580-49338	Date Analyzed: 08/28/2009 0642				
Nitrate as N	200	H	mg/L	30	100	300.0
	Analysis Batch: 580-49343	Date Analyzed: 08/28/2009 1610				
Chloride	2.9		mg/L	0.90	1.0	300.0
	Analysis Batch: 580-49338	Date Analyzed: 08/27/2009 1540				
Analyte	Result	Qual	Units		Dil	Method
pH	3.47	HF	SU		1.0	9040B
	Analysis Batch: 580-49355	Date Analyzed: 08/28/2009 1834				

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPR-1

Lab Sample ID: 580-15035-7

Date Sampled: 08/19/2009 1455

Client Matrix: Water

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Fluoride	740		mg/L	100	1000	300.0
Analysis Batch: 580-49338 Date Analyzed: 08/28/2009 0701						
Nitrate as N	440	H	mg/L	300	1000	300.0
Analysis Batch: 580-49343 Date Analyzed: 08/28/2009 0701						
Chloride	4.2		mg/L	0.90	1.0	300.0
Analysis Batch: 580-49338 Date Analyzed: 08/27/2009 1559						
Analyte	Result	Qual	Units		Dil	Method
pH	2.75	HF	SU		1.0	9040B
Analysis Batch: 580-49355 Date Analyzed: 08/28/2009 1834						

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

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**General Chemistry****Client Sample ID:** TIR-1**Lab Sample ID:** 580-15035-8**Client Matrix:** Water**Date Sampled:** 08/19/2009 1445**Date Received:** 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Fluoride	1600		mg/L	100	1000	300.0
	Analysis Batch: 580-49338	Date Analyzed: 08/28/2009 0719				
Nitrate as N	950	H	mg/L	300	1000	300.0
	Analysis Batch: 580-49343	Date Analyzed: 08/28/2009 0719				
Chloride	4.6		mg/L	0.90	1.0	300.0
	Analysis Batch: 580-49338	Date Analyzed: 08/27/2009 1617				

Analyte	Result	Qual	Units	Dil	Method
pH	1.90	HF	SU	1.0	9040B
	Analysis Batch: 580-49355	Date Analyzed: 08/28/2009 1834			

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TPNW-1

Lab Sample ID: 580-15035-9

Date Sampled: 08/19/2009 0900

Client Matrix: Solid

% Moisture: 20.4

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	340	H	mg/Kg	1.2	10	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 2225				DryWt Corrected: Y
Fluoride-Soluble	880		mg/Kg	7.2	10	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 2225				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	4.0	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0043				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	3.37		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	80		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	20		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-1 12"

Lab Sample ID: 580-15035-10

Client Matrix: Solid

% Moisture: 11.0

Date Sampled: 08/19/2009 1159

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	82	H	mg/Kg	1.1	10	300.0
Analysis Batch: 580-49352 Date Analyzed: 08/27/2009 2244						DryWt Corrected: Y
Fluoride-Soluble	1100		mg/Kg	6.4	10	300.0
Analysis Batch: 580-49350 Date Analyzed: 08/27/2009 2244						DryWt Corrected: Y
Chloride-Soluble	7.3		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350 Date Analyzed: 08/27/2009 0102						DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	6.67		SU	1.0	9045C
Analysis Batch: 580-49076 Date Analyzed: 08/25/2009 1713					DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	89		%	0.10	1.0	Moisture
Analysis Batch: 580-48915 Date Analyzed: 08/23/2009 1037						DryWt Corrected: N
Percent Moisture	11		%	0.10	1.0	Moisture
Analysis Batch: 580-48915 Date Analyzed: 08/23/2009 1037						DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry****Client Sample ID: TP-1 20"**

Lab Sample ID: 580-15035-11

Date Sampled: 08/19/2009 1209

Client Matrix: Solid

% Moisture: 11.8

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	40		mg/Kg	0.11	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0120				DryWt Corrected: Y
Fluoride-Soluble	1600		mg/Kg	6.5	10	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 2302				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.6	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0120				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.78		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	88		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	12		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-1 20" DUP

Lab Sample ID: 580-15035-12

Client Matrix: Solid

% Moisture: 10.7

Date Sampled: 08/19/2009 1211

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	43		mg/Kg	0.11	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0139				DryWt Corrected: Y
Fluoride-Soluble	1500		mg/Kg	6.4	10	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 2339				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0139				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.98		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	89		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	11		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-1 36"

Lab Sample ID: 580-15035-13

Date Sampled: 08/19/2009 1430

Client Matrix: Solid

% Moisture: 10.9

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	12		mg/Kg	0.11	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0157				DryWt Corrected: Y
Fluoride-Soluble	910		mg/Kg	6.6	10	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/28/2009 0053				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.6	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0157				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	4.61		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	89		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	11		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-1 74"

Lab Sample ID: 580-15035-14

Client Matrix: Solid

% Moisture: 15.5

Date Sampled: 08/19/2009 1645

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	32		mg/Kg	0.12	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0215				DryWt Corrected: Y
Fluoride-Soluble	310		mg/Kg	3.5	5.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/28/2009 0129				DryWt Corrected: Y
Chloride-Soluble	6.6		mg/Kg	3.9	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0215				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	4.86		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	85		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	15		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-2 9"

Lab Sample ID: 580-15035-15

Date Sampled: 08/19/2009 1130

Client Matrix: Solid

% Moisture: 6.9

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	100	H	mg/Kg	0.50	5.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/28/2009 0206				DryWt Corrected: Y
Fluoride-Soluble	100		mg/Kg	0.60	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0234				DryWt Corrected: Y
Chloride-Soluble	5.2		mg/Kg	3.3	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0234				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	9.45		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	93		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	6.9		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-2 15"

Lab Sample ID: 580-15035-16

Client Matrix: Solid

% Moisture: 19.7

Date Sampled: 08/19/2009 1135

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	530	H	mg/Kg	1.2	10	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/28/2009 0243				DryWt Corrected: Y
Fluoride-Soluble	10		mg/Kg	0.73	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0252				DryWt Corrected: Y
Chloride-Soluble	4.4		mg/Kg	4.0	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0252				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.38		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	80		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	20		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-2 15" DUP

Lab Sample ID: 580-15035-17

Date Sampled: 08/19/2009 1138

Client Matrix: Solid

% Moisture: 22.6

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	540	H	mg/Kg	1.2	10	300.0
Analysis Batch: 580-49352	Date Analyzed: 08/28/2009 0320					DryWt Corrected: Y
Fluoride-Soluble	9.5		mg/Kg	0.71	1.0	300.0
Analysis Batch: 580-49350	Date Analyzed: 08/27/2009 0311					DryWt Corrected: Y
Chloride-Soluble	4.3		mg/Kg	3.9	1.0	300.0
Analysis Batch: 580-49350	Date Analyzed: 08/27/2009 0311					DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	4.83		SU	1.0	9045C
Analysis Batch: 580-49076	Date Analyzed: 08/25/2009 1713				DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	77		%	0.10	1.0	Moisture
Analysis Batch: 580-48915	Date Analyzed: 08/23/2009 1037					DryWt Corrected: N
Percent Moisture	23		%	0.10	1.0	Moisture
Analysis Batch: 580-48915	Date Analyzed: 08/23/2009 1037					DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry****Client Sample ID: TP-2 36"**

Lab Sample ID: 580-15035-18

Date Sampled: 08/19/2009 1150

Client Matrix: Solid

% Moisture: 8.8

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	93	H	mg/Kg	0.53	5.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/28/2009 0434				DryWt Corrected: Y
Fluoride-Soluble	150		mg/Kg	0.63	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0329				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0329				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.85		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	91		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	8.8		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry****Client Sample ID: TP-3 6"**

Lab Sample ID: 580-15035-19

Date Sampled: 08/19/2009 1051

Client Matrix: Solid

% Moisture: 6.1

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	68	H	mg/Kg	0.53	5.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/28/2009 0510				DryWt Corrected: Y
Fluoride-Soluble	55		mg/Kg	0.63	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0424				DryWt Corrected: Y
Chloride-Soluble	3.7		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0424				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	8.11		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	94		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	6.1		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N



**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-3 6" DUP

Lab Sample ID: 580-15035-20

Client Matrix: Solid

% Moisture: 6.5

Date Sampled: 08/19/2009 1053

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	55	H	mg/Kg	0.49	5.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/28/2009 0529				DryWt Corrected: Y
Fluoride-Soluble	49		mg/Kg	0.59	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0443				DryWt Corrected: Y
Chloride-Soluble	ND		mg/Kg	3.2	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0443				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	8.33		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	94		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	6.5		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-3 12"

Lab Sample ID: 580-15035-21

Date Sampled: 08/19/2009 1100

Client Matrix: Solid

% Moisture: 10.8

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	44		mg/Kg	0.10	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0501				DryWt Corrected: Y
Fluoride-Soluble	74		mg/Kg	0.62	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0501				DryWt Corrected: Y
Chloride-Soluble	3.8		mg/Kg	3.4	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0501				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	8.29		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	89		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	11		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: TP-3 36"

Lab Sample ID: 580-15035-22

Date Sampled: 08/19/2009 1115

Client Matrix: Solid

% Moisture: 9.9

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	7.7		mg/Kg	0.10	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0520				DryWt Corrected: Y
Fluoride-Soluble	14		mg/Kg	0.63	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0520				DryWt Corrected: Y
Chloride-Soluble	4.6		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0520				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.65		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	90		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	9.9		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: BG-1 6"

Lab Sample ID: 580-15035-23

Date Sampled: 08/19/2009 0945

Client Matrix: Solid

% Moisture: 6.2

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	0.62		mg/Kg	0.10	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0537				DryWt Corrected: Y
Fluoride-Soluble	2.5		mg/Kg	0.62	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0537				DryWt Corrected: Y
Chloride-Soluble	5.5		mg/Kg	3.4	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0537				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	9.09		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	94		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	6.2		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: BG-1 30"

Lab Sample ID: 580-15035-24

Client Matrix: Solid

% Moisture: 9.4

Date Sampled: 08/19/2009 0951

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	12		mg/Kg	0.10	1.0	300.0
Analysis Batch: 580-49352		Date Analyzed: 08/27/2009 0555				DryWt Corrected: Y
Fluoride-Soluble	27		mg/Kg	0.60	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0555				DryWt Corrected: Y
Chloride-Soluble	6.8		mg/Kg	3.3	1.0	300.0
Analysis Batch: 580-49350		Date Analyzed: 08/27/2009 0555				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	5.23		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	91		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	9.4		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: BG-1 30" DUP

Lab Sample ID: 580-15035-25

Date Sampled: 08/19/2009 0952

Client Matrix: Solid

% Moisture: 9.5

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	8.5		mg/Kg	0.11	1.0	300.0
Analysis Batch: 580-49354		Date Analyzed: 08/28/2009 1420				DryWt Corrected: Y
Fluoride-Soluble	12		mg/Kg	0.63	1.0	300.0
Analysis Batch: 580-49353		Date Analyzed: 08/28/2009 1420				DryWt Corrected: Y
Chloride-Soluble	4.8		mg/Kg	3.5	1.0	300.0
Analysis Batch: 580-49353		Date Analyzed: 08/28/2009 1420				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	6.64		SU	1.0	9045C
Analysis Batch: 580-49076		Date Analyzed: 08/25/2009 1713			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	91		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N
Percent Moisture	9.5		%	0.10	1.0	Moisture
Analysis Batch: 580-48915		Date Analyzed: 08/23/2009 1037				DryWt Corrected: N

**Analytical Data**

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**General Chemistry**

Client Sample ID: BG-1 39"

Lab Sample ID: 580-15035-26

Client Matrix: Solid

% Moisture: 16.3

Date Sampled: 08/19/2009 1005

Date Received: 08/20/2009 0920

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N-Soluble	3.6		mg/Kg	0.12	1.0	300.0
	Analysis Batch: 580-49354	Date Analyzed: 08/28/2009 1438				DryWt Corrected: Y
Fluoride-Soluble	68		mg/Kg	0.70	1.0	300.0
	Analysis Batch: 580-49353	Date Analyzed: 08/28/2009 1438				DryWt Corrected: Y
Chloride-Soluble	6.8		mg/Kg	3.9	1.0	300.0
	Analysis Batch: 580-49353	Date Analyzed: 08/28/2009 1438				DryWt Corrected: Y

Analyte	Result	Qual	Units	Dil	Method
pH	7.98		SU	1.0	9045C
	Analysis Batch: 580-49076	Date Analyzed: 08/25/2009 1720			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	84		%	0.10	1.0	Moisture
	Analysis Batch: 580-48915	Date Analyzed: 08/23/2009 1046				DryWt Corrected: N
Percent Moisture	16		%	0.10	1.0	Moisture
	Analysis Batch: 580-48915	Date Analyzed: 08/23/2009 1046				DryWt Corrected: N

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-48778

Method: 6010B  
Preparation: 7195

Lab Sample ID: MB 580-48778/23-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/21/2009 1119  
Date Prepared: 08/20/2009 1431

Analysis Batch: 580-48864  
Prep Batch: 580-48778  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Hexavalent chromium	ND		0.025

### LCS-Standard Reference Material - Batch: 580-48778

Method: 6010B  
Preparation: 7195

Lab Sample ID: LCSSRM 580-48778/26-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/21/2009 1129  
Date Prepared: 08/20/2009 1431

Analysis Batch: 580-48864  
Prep Batch: 580-48778  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Hexavalent chromium	2.00	1.96	98	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Lab Control Sample/  
Lab Control Sample Duplicate Recovery Report - Batch: 580-48778**

**Method: 6010B  
Preparation: 7195**

LCS Lab Sample ID: LCS 580-48778/24-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/21/2009 1122  
Date Prepared: 08/20/2009 1431

Analysis Batch: 580-48864  
Prep Batch: 580-48778  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-48778/25-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/21/2009 1125  
Date Prepared: 08/20/2009 1431

Analysis Batch: 580-48864  
Prep Batch: 580-48778  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Hexavalent chromium	107	87	80 - 120	21	20		*

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-48943

Lab Sample ID: MB 580-48943/20-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/24/2009 1846  
Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49028  
Prep Batch: 580-48943  
Units: mg/L

Method: 6010B  
Preparation: 3005A  
Total Recoverable

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Arsenic	ND		0.060
Barium	ND		0.010
Cadmium	ND		0.010
Chromium	ND		0.025
Lead	ND		0.030
Selenium	ND		0.10
Silver	ND		0.020
Copper	ND		0.020
Zinc	ND		0.040

### Method Blank - Batch: 580-48943

Lab Sample ID: MB 580-48943/20-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/25/2009 1158  
Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49036  
Prep Batch: 580-48943  
Units: mg/L

Method: 6010B  
Preparation: 3005A  
Total Recoverable

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Cadmium	ND		0.010

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-48943

Method: 6010B  
Preparation: 3005A  
Total Recoverable

LCS Lab Sample ID: LCS 580-48943/21-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/24/2009 1924  
Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49028  
Prep Batch: 580-48943  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-48943/22-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/24/2009 1929  
Date Prepared: 08/24/2009 1049

Analysis Batch: 580-49028  
Prep Batch: 580-48943  
Units: mg/L

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Arsenic	93	94	80 - 120	1	20		
Barium	101	103	80 - 120	2	20		
Cadmium	97	99	80 - 120	2	20		
Chromium	100	102	80 - 120	2	20		
Lead	99	101	80 - 120	2	20		
Selenium	89	90	80 - 120	2	20		
Silver	98	99	80 - 120	1	20		
Copper	100	102	80 - 120	2	20		
Zinc	98	100	80 - 120	2	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Method Blank - Batch: 580-49116

Method: 6010B  
Preparation: 3050B

Lab Sample ID: MB 580-49116/16-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1407  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Arsenic	ND		3.0
Barium	ND		0.50
Cadmium	ND		0.50
Chromium	ND		1.3
Lead	ND		1.5
Selenium	ND		5.0
Silver	ND		1.0
Copper	ND		1.0
Zinc	ND		2.5

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Lab Control Sample/  
Lab Control Sample Duplicate Recovery Report - Batch: 580-49116**

**Method: 6010B  
Preparation: 3050B**

LCS Lab Sample ID: LCS 580-49116/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1438  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-49116/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1443  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Arsenic	100	97	80 - 120	3	35		
Barium	103	101	80 - 120	1	35		
Cadmium	99	96	80 - 120	3	35		
Chromium	102	101	80 - 120	1	35		
Lead	101	98	80 - 120	3	35		
Selenium	96	93	80 - 120	3	35		
Silver	97	96	80 - 120	2	35		
Copper	101	99	80 - 120	2	35		
Zinc	100	98	80 - 120	2	35		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49116

Method: 6010B  
Preparation: 3050B

MS Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1427  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0757 g  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1431  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0448 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Arsenic	151	149	75 - 125	2	35	F	F
Barium	99	111	75 - 125	14	35		
Cadmium	79	82	75 - 125	7	35		
Chromium	249	430	75 - 125	53	35	F	F
Lead	176	179	75 - 125	4	35	F	F
Selenium	94	97	75 - 125	6	35		
Silver	96	100	75 - 125	7	35		
Copper	447	464	75 - 125	6	35	F	F
Zinc	484	692	75 - 125	35	35	F	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49116**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1419  
Date Prepared: 08/26/2009 1134

Analysis Batch: 580-49216  
Prep Batch: 580-49116  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0499 g  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Arsenic	11	45.5	124	35	F
Barium	10	37.7	115	35	F
Cadmium	ND	ND	NC	35	
Chromium	4.2	124	187	35	F
Lead	5.1	27.1	137	35	F
Selenium	5.7	10.6	59	35	
Silver	ND	ND	NC	35	
Copper	8.4	56.0	148	35	F
Zinc	28	220	155	35	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49123

Method: 6010B  
Preparation: 3050B

Lab Sample ID: MB 580-49123/16-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1636  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Arsenic	ND		3.0
Barium	ND		0.50
Cadmium	ND		0.50
Chromium	ND		1.3
Lead	ND		1.5
Selenium	ND		5.0
Silver	ND		1.0
Copper	ND		1.0
Zinc	ND		2.5

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-49123

Method: 6010B  
Preparation: 3050B

LCS Lab Sample ID: LCS 580-49123/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1709  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-49123/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1714  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Arsenic	93	93	80 - 120	0	35		
Barium	96	97	80 - 120	0	35		
Cadmium	91	92	80 - 120	1	35		
Chromium	96	96	80 - 120	0	35		
Lead	94	94	80 - 120	1	35		
Selenium	89	89	80 - 120	0	35		
Silver	91	91	80 - 120	0	35		
Copper	91	90	80 - 120	0	35		
Zinc	93	95	80 - 120	2	35		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49123

Method: 6010B  
Preparation: 3050B

MS Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1657  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0601 g  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1701  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0094 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Arsenic	93	88	75 - 125	0	35		
Barium	100	82	75 - 125	10	35		
Cadmium	87	82	75 - 125	1	35		
Chromium	92	87	75 - 125	1	35		
Lead	56	31	75 - 125	7	35	F	F
Selenium	90	86	75 - 125	1	35		
Silver	90	89	75 - 125	3	35		
Copper	535	85	75 - 125	24	35	4	4
Zinc	46	83	75 - 125	5	35	4	4

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49123**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1652  
Date Prepared: 08/26/2009 1215

Analysis Batch: 580-49217  
Prep Batch: 580-49123  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 1.0330 g  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Arsenic	4.6	ND	27	35	
Barium	110	124	16	35	
Cadmium	0.67	0.618	8	35	
Chromium	20	15.9	23	35	
Lead	180	134	27	35	
Selenium	8.5	ND	35	35	
Silver	ND	ND	NC	35	
Copper	460	412	10	35	
Zinc	420	326	25	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49221

Method: 6010B  
Preparation: 7195

Lab Sample ID: MB 580-49221/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2149  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Hexavalent chromium	ND		0.26

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-49221

Method: 6010B  
Preparation: 7195

LCS Lab Sample ID: LCS 580-49221/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2153  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-49221/19-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2156  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Hexavalent chromium	93	96	80 - 120	3	35		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49221

Method: 6010B  
Preparation: 7195

MS Lab Sample ID: 580-15035-9  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2214  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0613 mL  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-9  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2218  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0613 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Hexavalent chromium	125	118	75 - 125	4	35		

### Duplicate - Batch: 580-49221

Method: 6010B  
Preparation: 7195

Lab Sample ID: 580-15035-9  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2207  
Date Prepared: 08/27/2009 1025

Analysis Batch: 580-49300  
Prep Batch: 580-49221  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0462 mL  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Hexavalent chromium	8.2	11.7	35	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49237

Method: 6010B  
Preparation: 7195

Lab Sample ID: MB 580-49237/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2330  
Date Prepared: 08/27/2009 1244

Analysis Batch: 580-49306  
Prep Batch: 580-49237  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Hexavalent chromium	ND		0.26

### Lab Control Sample - Batch: 580-49237

Method: 6010B  
Preparation: 7195

Lab Sample ID: LCS 580-49237/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2334  
Date Prepared: 08/27/2009 1244

Analysis Batch: 580-49306  
Prep Batch: 580-49237  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Hexavalent chromium	20.0	22.3	112	80 - 120	

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49237

Method: 6010B  
Preparation: 7195

MS Lab Sample ID: 580-15035-17  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2355  
Date Prepared: 08/27/2009 1244

Analysis Batch: 580-49306  
Prep Batch: 580-49237

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0297 mL  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-17  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2358  
Date Prepared: 08/27/2009 1244

Analysis Batch: 580-49306  
Prep Batch: 580-49237

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0297 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Hexavalent chromium	92	105	75 - 125	13	35		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49237**

**Method: 6010B**  
**Preparation: 7195**

Lab Sample ID: 580-15035-17  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/27/2009 2351  
Date Prepared: 08/27/2009 1244

Analysis Batch: 580-49306  
Prep Batch: 580-49237  
Units: mg/Kg

Instrument ID: SEA027  
Lab File ID: N/A  
Initial Weight/Volume: 5.0527 mL  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Hexavalent chromium	ND	0.408	31	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-48965

Lab Sample ID: MB 580-48965/13-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/25/2009 0945  
Date Prepared: 08/24/2009 1333

Analysis Batch: 580-49069  
Prep Batch: 580-48965  
Units: mg/L

### Method: 7470A Preparation: 7470A

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Mercury	ND		0.00020

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-48965

### Method: 7470A Preparation: 7470A

LCS Lab Sample ID: LCS 580-48965/14-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/25/2009 0950  
Date Prepared: 08/24/2009 1333

Analysis Batch: 580-49069  
Prep Batch: 580-48965  
Units: mg/L

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-48965/15-A  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/25/2009 0954  
Date Prepared: 08/24/2009 1333

Analysis Batch: 580-49069  
Prep Batch: 580-48965  
Units: mg/L

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 50 mL  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	105	100	75 - 125	5	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49098

Lab Sample ID: MB 580-49098/16-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1207  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098  
Units: mg/Kg

### Method: 7471A Preparation: 7471A

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Mercury	ND		0.020

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-49098

### Method: 7471A Preparation: 7471A

LCS Lab Sample ID: LCS 580-49098/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1212  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-49098/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1216  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	102	98	75 - 125	4	25		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49098

Method: 7471A  
Preparation: 7471A

MS Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1234  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5714 g  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1238  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5223 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Mercury	95	104	75 - 125	18	35		

### Duplicate - Batch: 580-49098

Method: 7471A  
Preparation: 7471A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1230  
Date Prepared: 08/26/2009 0917

Analysis Batch: 580-49213  
Prep Batch: 580-49098  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5660 g  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	ND	ND	32	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49113

Method: 7471A  
Preparation: 7471A

Lab Sample ID: MB 580-49113/16-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1343  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Mercury	ND		0.020

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 580-49113

Method: 7471A  
Preparation: 7471A

LCS Lab Sample ID: LCS 580-49113/17-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1347  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 580-49113/18-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1351  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	104	104	75 - 125	0	25		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 580-49113

Method: 7471A  
Preparation: 7471A

MS Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1409  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5645 g  
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1413  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5244 g  
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Mercury	87	87	75 - 125	5	35		

### Duplicate - Batch: 580-49113

Method: 7471A  
Preparation: 7471A

Lab Sample ID: 580-15035-16  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 1400  
Date Prepared: 08/26/2009 1100

Analysis Batch: 580-49213  
Prep Batch: 580-49113  
Units: mg/Kg

Instrument ID: SEA029  
Lab File ID: N/A  
Initial Weight/Volume: 0.5472 g  
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	0.095	0.0846	12	35	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49338/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/27/2009 1427  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Fluoride	ND		0.10
Chloride	ND		0.90

### Lab Control Sample - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49338/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/27/2009 1408  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride	2.00	2.16	108	90 - 110	
Chloride	10.0	10.8	108	90 - 110	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 5.0  
Date Analyzed: 08/27/2009 1522  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	4.3	40.0	36.2	80	80 - 120	

### Matrix Spike - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1000  
Date Analyzed: 08/28/2009 0624  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride	480	16.0	760	1750	80 - 120	4

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Duplicate - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/27/2009 1503  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	4.3	4.30	1	20	

### Duplicate - Batch: 580-49338

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1000  
Date Analyzed: 08/28/2009 0606  
Date Prepared: N/A

Analysis Batch: 580-49338  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Fluoride	480	700	37	20	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49343

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49343/2  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/27/2009 1427  
Date Prepared: N/A

Analysis Batch: 580-49343  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Nitrate as N	ND		0.30

### Lab Control Sample - Batch: 580-49343

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49343/1  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/27/2009 1408  
Date Prepared: N/A

Analysis Batch: 580-49343  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	1.00	1.07	107	90 - 110	

### Matrix Spike - Batch: 580-49343

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1000  
Date Analyzed: 08/28/2009 0624  
Date Prepared: N/A

Analysis Batch: 580-49343  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	400	4.00	420	500	80 - 120	4

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Duplicate - Batch: 580-49343

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1000  
Date Analyzed: 08/28/2009 0606  
Date Prepared: N/A

Analysis Batch: 580-49343  
Prep Batch: N/A  
Units: mg/L

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	400	420	5	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49061/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2139  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Leachate Batch: 580-49061

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Fluoride-Soluble	ND		0.60
Chloride-Soluble	ND		3.3

### Lab Control Sample - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49061/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2158  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Leachate Batch: 580-49061

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride-Soluble	160	161	101	90 - 110	
Chloride-Soluble	400	395	99	90 - 110	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Matrix Spike - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2253  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Leachate Batch: 580-49061

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	ND	395	336	84	80 - 120	

### Matrix Spike - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 5.0  
Date Analyzed: 08/27/2009 2016  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Leachate Batch: 580-49061

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride-Soluble	94	158	126	20	80 - 120	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Duplicate - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2235  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Leachate Batch: 580-49061

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride-Soluble	ND	4.45	18	20	

### Duplicate - Batch: 580-49350

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 5.0  
Date Analyzed: 08/27/2009 1958  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49350  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Leachate Batch: 580-49061

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Fluoride-Soluble	94	54.6	53	20	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49352

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49061/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2139  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49352  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49061

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Nitrate as N-Soluble	ND		0.10

### Lab Control Sample - Batch: 580-49352

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49061/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/26/2009 2158  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49352  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49061

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	40.0	40.0	100	90 - 110	

### Matrix Spike - Batch: 580-49352

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 5.0  
Date Analyzed: 08/27/2009 2016  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49352  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49061

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	68	39.5	271	514	80 - 120	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49352**

**Method: 300.0**  
**Preparation: N/A**

Lab Sample ID: 580-15035-1  
Client Matrix: Solid  
Dilution: 5.0  
Date Analyzed: 08/27/2009 1958  
Date Prepared: N/A  
Date Leached: 08/25/2009 1520

Analysis Batch: 580-49352  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Leachate Batch: 580-49061

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N-Soluble	68	167	84	20	F

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49353

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49312/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1314  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49353  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Fluoride-Soluble	ND		0.60
Chloride-Soluble	ND		3.3

### Lab Control Sample - Batch: 580-49353

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49312/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1333  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49353  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride-Soluble	160	157	98	90 - 110	
Chloride-Soluble	400	389	97	90 - 110	

### Matrix Spike - Batch: 580-49353

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-26  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1515  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49353  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Fluoride-Soluble	68	181	183	63	80 - 120	F
Chloride-Soluble	6.8	453	439	96	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49353**

**Method: 300.0**  
**Preparation: N/A**

Lab Sample ID: 580-15035-26  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1456  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49353  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Fluoride-Soluble	68	72.4	6	20	
Chloride-Soluble	6.8	6.46	5	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Method Blank - Batch: 580-49354

Method: 300.0  
Preparation: N/A

Lab Sample ID: MB 580-49312/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1314  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49354  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Nitrate as N-Soluble	ND		0.10

### Lab Control Sample - Batch: 580-49354

Method: 300.0  
Preparation: N/A

Lab Sample ID: LCS 580-49312/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1333  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49354  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	40.0	39.5	99	90 - 110	

### Matrix Spike - Batch: 580-49354

Method: 300.0  
Preparation: N/A

Lab Sample ID: 580-15035-26  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1515  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49354  
Prep Batch: N/A  
Units: mg/Kg  
  
Leachate Batch: 580-49312

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 2 mL  
Final Weight/Volume: 2 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	3.6	45.3	47.4	97	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49354**

**Method: 300.0**  
**Preparation: N/A**

Lab Sample ID: 580-15035-26  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1456  
Date Prepared: N/A  
Date Leached: 08/28/2009 1132

Analysis Batch: 580-49354  
Prep Batch: N/A  
Units: mg/Kg

Instrument ID: IS 2000 Ion Chromatograph  
Lab File ID: N/A  
Initial Weight/Volume: 5 mL  
Final Weight/Volume: 5 mL

Leachate Batch: 580-49312

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N-Soluble	3.6	3.74	3	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49355**

**Method: 9040B**  
**Preparation: N/A**

Lab Sample ID: 580-15035-5  
Client Matrix: Water  
Dilution: 1.0  
Date Analyzed: 08/28/2009 1834  
Date Prepared: N/A

Analysis Batch: 580-49355  
Prep Batch: N/A  
Units: SU

Instrument ID: No Equipment Assigned  
Lab File ID: N/A  
Initial Weight/Volume:  
Final Weight/Volume: 1.0 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH	3.33	3.330	0		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

**Duplicate - Batch: 580-49076**

**Method: 9045C**  
**Preparation: N/A**

Lab Sample ID: 580-15035-19  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/25/2009 1713  
Date Prepared: N/A

Analysis Batch: 580-49076  
Prep Batch: N/A  
Units: SU

Instrument ID: No Equipment Assigned  
Lab File ID: N/A  
Initial Weight/Volume: 1.0 mL  
Final Weight/Volume: 1.0 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH	8.11	8.150	0		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

### Duplicate - Batch: 580-48915

**Method: Moisture**  
**Preparation: N/A**

Lab Sample ID: 580-15035-2  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 08/23/2009 1037  
Date Prepared: N/A

Analysis Batch: 580-48915  
Prep Batch: N/A  
Units: %

Instrument ID: No Equipment Assigned  
Lab File ID: N/A  
Initial Weight/Volume:  
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Solids	93	97		20	
Percent Moisture	6.5	3.0		20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## DATA REPORTING QUALIFIERS

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Lab Section	Qualifier	Description
<b>Metals</b>		
	F	Duplicate RPD exceeds the control limit
	F	MS or MSD exceeds the control limits
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	*	RPD of the LCS and LCSD exceeds the control limits
	F	RPD of the MS and MSD exceeds the control limits
<b>General Chemistry</b>		
	F	Duplicate RPD exceeds the control limit
	HF	Field parameter with a holding time of 15 minutes
	F	MS or MSD exceeds the control limits
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	H	Sample was prepped or analyzed beyond the specified holding time

## Login Sample Receipt Check List

Client: Clean Harbors Environmental Services Inc

Job Number: 580-15035-1

Login Number: 15035

Creator: Gamble, Cathy

List Number: 1

List Source: TestAmerica Tacoma

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

## Project Daily Status Report

Project Name and Number ALASKA COFFEE TANK CLOSURE G72435731	Prepared by: (Project Manager/Foreman) MARTY Holloway	Date 08-07-09
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Planned Project Actual Start Date:	
Planned Project Completion Date:	
Project Status	Status Report Summary
<input type="checkbox"/> Project in jeopardy	
<input type="checkbox"/> Project late	
<input checked="" type="checkbox"/> Project on time	Mobilize for Start of Job on Monday

P - Additional PO's Required (rental equipment), C - Additional Costs (MH owned equipment), M - Additional Materials Required

Budget	
Project Task	Notes
mobilize	P C M See Below
cut up	P C M See Below
Naturalize	P C M See Below

C - Complete, A - Ahead of schedule, O - On schedule, B - Behind schedule

Project Tasks	Notes
1 mobilize Equipment	CA OB Bring PPE trailer, Steam cleaner, Air compressor, hoses and pumps
2 SAFETY Meeting AND CALL SAFETY AND Health	CA OB Went over PPE Requirements AND SAFETY ISSUES with product in tank
3 Layed Down Plastic AND cut up plywood Lid	CA OB Layed Plastic Down AND the cut up Lid for tank AND put into cubic yards
4 Picked up Sodium Bisulfite	CA OB Picked up 6 BAGS of Sodium Bisulfite to naturalize liquid that had pH of 1
5 Suited up	CA OB Had employees suit up to naturalize acid with Sodium Bi Sulfite to pH 6
6 Dressed Down AND clean up	CA OB Dressed Down and let Sodium Bisulfite gas off so we can pump it on Mon
7 Mobilize Back to Shop	CA OB TOOK equipment BACK to Shop.

Project Status Summary
08-07-09 Brought equipment down for TANK closure AND Had SAFETY Meeting ABOUT Requirements ABOUT PPE AND SAFETY ISSUES. Layed PLASTIC Down AND cut up the cover for the tank AND put into cubic yards Boxes. Then Had people suit up with Respirators AND proper PPE and Add Sodium Bi Sulfite to acid to naturalize it. Brought pH up to 6 and then cleaned up area LABELED DRUMS AND mobilized BACK to Seatac office. Need to let Sodium Bi Sulfite naturalize and gas off for Monday



## Project Daily Status Report

Project Name and Number ALASKAN COPPER TANK CLEANUP G72435731	Prepared by (Project Manager/Foreman) MARTY HOLLOWAY	Date 08-10-09
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Planned Project Actual Start Date:	
Planned Project Completion Date:	
Project Status	Status Report Summary
<input type="checkbox"/> Project in jeopardy	
<input type="checkbox"/> Project late	
<input checked="" type="checkbox"/> Project on time	Mobilize to Alaskan Copper

P – Additional PO's Required (rental equipment), C – Additional Costs (MH owned equipment), M – Additional Materials Required

Budget:		
Project Task	Notes	
SAFETY	PC M	See Below
Pumping & cleanup	PC M	See Below
Labeling	PC M	See Below

C – Complete, A – A head of schedule, O – On schedule, B – Behind schedule

Project Tasks	Notes
1 SAFETY Meeting and SAFETY AND HEALTH	CA OB Go over Hazards and what PPE need when going into TANK
2 Set up Pump AND Cubic Yard Boxes	CA OB Setup equipment to pump liquid out and clean all Debris out of TANK
3 Pulled 1 Cubic Yard Box	CA OB Filled one cubic yard box of Debris from TANK with Acid that is Neph
4 Started pumping Liquid to Tote	CA OB Started pumping Liquid from TANK and putting into Tote.
5 Steam Clean	CA OB Started Steam cleaning TANK to get the last of liquids out
6 LABEL DRUMS AND Boxes	CA OB LABELED DRUMS AND Cubic YARD Boxes AND Locked up for DAY
7 Demobilize	CA OB Left equipment at site DROVE BACK in Pickup to SEATAC FORDAU

Project Status Summary
HAD SAFETY Meeting and went over proper PPE FOR going into TANK, Boots, PPE, Respirator Cartridges and Gloves. Then Set up Pump and clean all the Debris out of TANK BEFORE we Pump Liquids. Filled cubic YARD Box full of Debris FROM TANK, LABEL Box and store until profi is approved. Then pumped Liquid FROM TANK with 2" Diaphragm pump to Tote and LABELED it and set it ASIDE the rest of DRUMS, Totes, cubic YARD Boxes. The started Steam cleaning TANK and pumped Liquid to Tote. Then cleaned up FOR the DAY and Demobilized BACK to SEATAC OFFICE.

## Project Daily Status Report

Project Name and Number <b>ALASKA COPPER AND BRASS</b> <b>G72435731</b>	Prepared by (Project Manager/Foreman) <b>MARTY FOLLOWAY</b>	Date: <b>08-11-09</b>
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Planned Project Actual Start Date:	
Planned Project Completion Date:	
Project Status	Status Report Summary
<input checked="" type="checkbox"/> Project in jeopardy	
<input type="checkbox"/> Project late	
<input checked="" type="checkbox"/> Project on time	

P - Additional PO's Required (rental equipment), C - Additional Costs (MH owned equipment), M - Additional Materials Required

Budget:			
Project Task		Notes	
Complete TANK	PC	Complete Steam Cleaning of TANK	
Suck Liquids out	PC	AND Neutralizing	
Mobilize Back to Seatac	PC	Complete Final Cleanout of Liquid	
	M	Drive Back to Seatac	

C - Complete, A - A head of schedule, O - On schedule, B - Behind schedule

Project Tasks		Notes	
1 Safety Meeting	CA	HAD SAFETY Meeting and called	
2 Spray Neutralizer on TANK and Degreaser	OB	SAFETY AND HEALTH to go over PPE	
3 Putting in Steam cleaner to use Hot steam	CA	Sprayed TANK with Neutralizer	
4 DRUM VAC to DRUMS	OB	AND Degreasers and let sit.	
5 House keeping	CA	Steam cleaned TANK and washed	
6 LABELING	OB	the inside thoroughly AND complete	
7 Mobilization	CA	Then used Drum Vacuum to suck	
	OB	all the liquids out of TANK	
		Then swept up area and cleaned	
		up all PPE and Plastic and put in	
		Cubic YARD Box.	
		Labeled DRUMS & Cubic YARDS Boxes.	
		Mobilize BACK to Seatac office	
		AND brought back Steamcleaner & Air Copes	

Project Status Summary
<p>HAD SAFETY Meeting AND CALLED SAFETY AND HEALTH to go over PPE and Requirements for TANK entry. Then Sprayed Neutralizer AND Degreaser ON TANK and let it sit and Soak into TANK. Then Steam cleaned TANK with Hot Steam and H2O and then sucked it up with Drum Vacuum to get all Liquids and Debris out of TANK. Then cleaned up all PPE, Plastic and Debris AND put it into Cubic YARD Box and also DRUM for liquid. Labeled DRUM AND Boxes and Drove BACK to Seatac office AND Put Steamcleaner and Air Copes away until tomorrow</p>

## Project Daily Status Report

Project Name and Number ALASKA OFFICE AND DRAGS G72435731	Prepared by: (Project Manager/Foreman) MARTY HOLLOWAY	Date: 8-12-05
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Planned Project Actual Start Date: 08-10-05	Planned Project Completion Date:
Project Status	Status Report Summary
<input checked="" type="checkbox"/> Project in command	
<input type="checkbox"/> Project late	
<input type="checkbox"/> Project on time	

P - Additional PO's Required (rental equipment), C - Additional Costs (MH owned equipment), M - Additional Materials Required

Budget:		
Project Task	Notes	
TANK Removal	PC M	Pull TANK and clean up Area
House Keeping	PC M	Clean up all OF Debris from TK Area
Confined SPACE	PC M	Go inside crawl space to look for leak

C - Complete, A - A head of schedule, O - On schedule, B - Behind schedule

Project Tasks	Notes	
1 SAFETY & HEALTH	CA OB	Go over PPE AND Confined SPACE Entry with Paul Wessich
2 Confined SPACE Entry	CA OB	Wrote out Permit for Confined SPACE AND then sent ADAM into crawl space.
3 TANK Removal	CA OB	Got FORKLIFT AND Hooked up Straps AND CHAINS and Pulled TANK OUT
4 Cleanup of TANK AREA	CA OB	SENT Two people into TANK storage Area too Clean up Debris AND Scale
5 Put Debris into BINS	CA OB	Cut up all the wood and Debris AND put into cubic yard Boxes
6 LABELED Cubic YARD	CA OB	LABELED Cubic YARD Boxes AND closed them and Cleaned up.
7 COVERED TANK AREA	CA OB	Cut PLASTIC AND Covered the TANK Area and also wrapped TANK with Plastic

### Project Status Summary: 08-12-05

HAD SAFETY AND HEALTH meeting to go over PPE and Confined SPACE Area. Then Set up plastic and Pallets to Stone TANK ON when we remove TANK. Then set up AND tested the Area and caution taped Crawl space and made sure Meter Readings were good. Then sent ADAM into Crawl space and take pictures OF all of Crawl space while Andrew was His standby. Then set up plastic for removal OF TANK, Hooked up. Straps AND CHAINS to remove TANK AND then Brought FORKLIFT in Hooked it up AND Pulled TANK and -

NEXT Page

Project Status Summary (continued)

WRAPPED it in plastic and Taped it up. Then cleaned out area where TANK WAS AND put everything that was Debris into cubic YARD Boxes AND the sealed up and LABELED them. Then covered TANK area with Plastic AND Stapled it to the TANK area.

Issues / Exceptions	Description of Issues / Exceptions
<input checked="" type="checkbox"/> Scope change <input type="checkbox"/> Resources not available <input type="checkbox"/> Performance error <input type="checkbox"/> Other	<p>AFTER we pulled TANK we Found a hole in wall that WAS ABOUT three Foot Deep that Needs to be addressed</p>



## Project Daily Status Report

Project Name and Number <b>Alaska Copper AND Sulfate</b> <b>G72435731</b>	Prepared by (Project Manager/Foreman) <b>Marty Holloway</b>	Date: <b>8-13-05</b>
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Planned Project Actual Start Date:	
Planned Project Completion Date:	
Project Status	Status Report Summary
<input type="checkbox"/> Project on schedule	
<input type="checkbox"/> Project late	
<input type="checkbox"/> Project on hold	

P – Additional PO's Required (rental equipment), C – Additional Costs (MH owned equipment), M – Additional Materials Required

Budget:			
Project Task	Notes		
Neutralize Pit Area	P C M	Neutralize AND Steam Clean Pit	
Sample	P C M	See Below	
Steam Clean & Housekeeping	P C M	See Below	

C – Complete, A – A head of schedule, O – On schedule, B – Behind schedule

Project Tasks	Notes	
1 Cover Hole with Sump Cover AND then DIASORB	CA OB	Put Sump cover over hole and then Poured DIASORB over it so no liquid gets
2 Safety Meeting	CA OB	went over PPE AND TYPE OF Neutralizer used for concrete PAD AND Respirators
3 Set up equipment	CA OB	Layed Down Plastic and then Set up Pump, Hoses, DRUM JAC AND Tote
4 Neutralize	CA OB	Neutralized concrete PAD with muta Bi Sulfate then used Simple Green
5 Steam Clean concrete PAD	CA OB	Then Steam Cleaned concrete PAD AND Pumped Liquid to tote
6 Sampling	CA OB	Pulled sample of Hole in wall Before we closed it off AND then Pulled sample of Ri.
7 House keeping	CA OB	Cleaned up Area and Labeled Tote AND cubic yard Box. Put Equipment on

### Project Status Summary 8-13-05

Went over SAFETY Plan FOR Today TALKED ABOUT PPE, Neutralizer, Respirators and Sampling for Today. Then Set up Plastic and Pump and tote to pump Liquids FROM Steam Cleaning. Then Layed Down Sump PAD cover over hole AND covered it with DIASORB so no Liquids would come in contact with it. Then sprayed Neutralizer all over concrete PAD AND let it sit. Then HAD Two people suit up AND go in to Steam clean it and pump liquid out of it, Also HAD another watching pump AND Tote. Pulled Sample out OF Hole in wall Before we

**Project Status Summary (continued)**

covered it with the sump pad AND then filled with DIASORB, Then pulled FINAL RINSE sample FOR concrete PAD AFTER we cleaned it. Then covered it with plastic AND did housekeeping of entire area AND pulled equipment BACK into to fenced off area. Still have not seen Heretz to pickup FORKLIFT will TALK with them tomorrow when I pick up Auger's. (sampled ID's FOR Soil TPNW-1) (Rinseate sample is TPNW-1 - for Pit) NORTH WALL

Issues / Exceptions	Description of Issues / Exceptions
<input type="checkbox"/> Scope change <input type="checkbox"/> Resources not available <input type="checkbox"/> Performance error <input type="checkbox"/> Other	

## Project Daily Status Report

Project Name and Number <b>Alaskan Copper and Brass</b> <b>G172435731</b>	Prepared by <b>(Project Manager/Foreman)</b> <b>Marty Holloway</b>	Date <b>08-14-05</b>
---	--	-------------------------

Planned Project Actual Start Date	
Planned Project Completion Date	
Project Status	Status Report Summary
<input type="checkbox"/> Project in jeopardy	
<input type="checkbox"/> Project late	
<input type="checkbox"/> Project on track	

P - Additional PO's Required (rental equipment), C - Additional Costs (MH owned equipment), M - Additional Materials Required

### Budget:

Project Task	Notes
SCRAPE FOAM OFF TANK	P C M See Below
WORK ON CORE Sampling	P C M
housekeeping	P C M

C - Complete, A - Ahead of schedule, O - On schedule, B - Behind schedule

Project Task	Notes
1 SAFETY Meeting & SAFETY AND HEALTH	CA OB Went over SAFETY AND PPE Requirements for the DAY OF what to wear
2 PICK UP CORING Drill	CA OB Sent Rick AND Adam to pick up equipment for coring and sampling
3 WORKED ON STRIPING TANK OF FOAM COVERING	CA OB Cory AND Andrew AND Marty Started SCRAPING FOAM OFF TANK
4 Started doing coring Samples for closure	CA OB Adam AND Rick working on coring Samples for closure Plan
5 Labeling AND Pickup	CA OB Picked up all the cubic yard Boxes AND TOOK FROM cleaning tank out
6 Picked up more Y Boxes	CA OB Marty went and picked up more cubic yard Boxes for stripping tank
7 housekeeping	CA OB cleaned up Area and labeled cubic yard Boxes along with coring

Results See attached pages

### Project Status Summary

Had morning Safety Meeting and PPE Requirements talked with Safety and Health about PPE Requirements. Sent Rick and Adam to pick up equipment at Test America and Hertz for coring sampling. Layed Down Plastic and Had Andrew AND Cory stripping foam off tank that we cleaned and pulled. Then filled two cubic yard Boxes with foam from tank labeled and set to the side. Had Rick AND Adam working on coring samples for closure plan, See Attached Sheets of what we have done with sampling so far. Also Picked up all the waste from cleaning the tank and

**Project Status Summary (continued)**

Concrete Area AND our Driver picked up waste AND took Back to our Facility. Then did house keeping and covering pit and tank and Labeling Drums and Boxes, Then Demobilized Back to Shop.

Issues / Exceptions	Description of Issues / Exceptions
<input type="checkbox"/> Scope change <input type="checkbox"/> Resources not available <input type="checkbox"/> Performance error <input type="checkbox"/> Other	



## Project Daily Status Report

Project Name and Number: <b>G-12435731</b>	Prepared by: (Project Manager/Foreman): <b>MARTY Holloway</b>	Date: <b>08-17-0</b>
<b>Alaskan Copper &amp; BRASS</b>		

Planned Project Start Date:	
Planned Project Completion Date:	
Project Status:	Status Report Summary
<input type="checkbox"/> Project on schedule	
<input type="checkbox"/> Project late	
<input type="checkbox"/> Project on hold	

P - Additional PO's Required (rental equipment), C - Additional Costs (MH owned equipment), M - Additional Materials Required

### Budget:

Project Task	Notes
Clean up Tank	P C M Done
Pull OFF FOAM	P C M Done
Clean Pit & cone Sample	P C M Done

C - Complete, A - Ahead of schedule, O - On schedule, B - Behind schedule

Project Task	Notes
1 Safety & Health	CA OB Went over PPE and project for today.
2 Coring Samples	CA OB Adam and Rick work on coring samples and pumping up liquid
3 Taking Foam off	CA OB Andrew and Corey and Marty took off foam from tank that we were
4 " "	CA OB working on and took pictures of tank and holes in it.
5 Labeling Boxes	CA OB Labeled all boxes and totes and drums
6 Housekeeping	CA OB Swept up all material in area that we work on.
7 Demobilization	CA OB Brought all equipment back to office

### Project Status Summary

HAD SAFETY Meeting to go over project for today and PPE that needed to be worn while working on specific tasks. Then sent Adam and Rick to pick up coring equipment for job site. Then had Andrew and Corey working on taking foam off tank and putting debris into cubic yard boxes and labeled them and store them. While I had Adam and Rick doing coring sample cuttings and pumping liquid into tote that we had on site. Then picked up forklift and moved tank on its side and the scraped all the foam off it and had Jerry come down to look

Project Status Summary (Continued)

At holes in TANK so he could take pictures of it,  
Then cleaned up site and Demobilized Back  
to SEATAC OFFICE AND Brought all the equipment  
Back PPE Trailer, Steam cleaner, Air compressor.

Issues / Exceptions	Description of Issues / Exceptions
<input type="checkbox"/> Scope change <input type="checkbox"/> Resources not available <input type="checkbox"/> Performance error <input type="checkbox"/> Other	

1 8/14/09

Alaskan Copper  
3600 Marginal Way S  
Seattle, WA 98134

### Scope

- Drill out Four (4) concrete  
Cores using a 10" coring bit
  - Collect Two concrete chips sample  
from Containment Pad one from  
most impacted floor, one from most  
impacted wall
  - Collect Two (2) Rinse samples  
from Containment and Tank  
water use during final Rinse of  
both
  - Concrete Cores will be placed Back in boxes
- 0900 - onsite with equipment
- 0930 - Needed additional equipment  
went to home depot
- \* One Call Dig Services called  
to clear utilities  
Ticket # 9197107

1 of 4

RR

8/14/09

- 1000 - Setup equipment @ test location for background
- 1050 Called Dave Costinada to confirm sampling plan
- 1100 - Lunch
- note water used for dust prevent and lubrication will be vacuumed into container and shipped with rest of waste

1200 - Began Coring first location

1245 Complete first Core cut (FR-1)  
Background Sample Bg-1  
0-6" Concrete

NO Sample collected

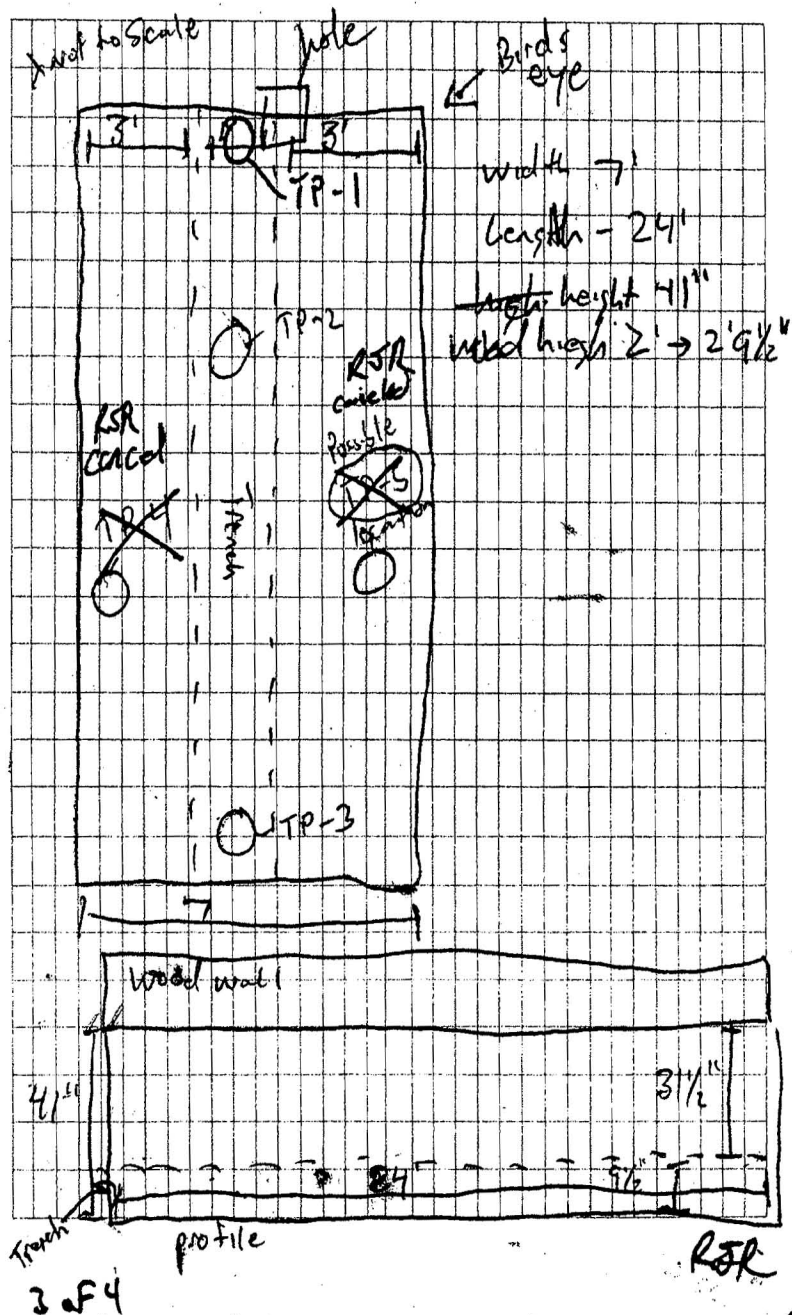
1300 Began Coring second location 1A  
Scale Contaminants

1400 Core incomplete - Bit not long enough  
longer bit used concrete more than  
7 1/2" deep - resulting 9 1/2" variation  
Variation between Pit Floor

2 of 4

RJR

8/14/09





8/14/09

1405 began breaking down silo  
No samples collected

- waiting for utility locate on site

1430 Finished demolishing on site  
Labeling + X-sectioning generated  
waste

stelt on site Rick Rodriguez  
Mark Hollaway  
Adam Parker  
Corey Bailey  
Andrew Murray

1445 - closed up site left site

4 of 4

RJR

8/17/09

onsite @ 0820

personnel

Corey Bailey  
Rick Rodriguez  
Mark Hollaway  
Andrew Murray  
Adam Parker

weather: Sunny 70°F

location: ACW 3600 Magnolia Way S  
Seattle WA

Scope

- Continue Coring Concrete for future  
Soil Sample Collection
- Three location to complete in  
Tank Pit Basin

0840 Tailgate safety meeting  
0845 begin to prep equipment  
onsite

1 of 9

RJR

5/17/09

0935 TP-2  
0-9" Concrete w/ gravelly  
Base Material  
- completed core for TP-2  
Continuing on to TP-1 along  
North Wall  
- Core taken from trench in  
middle of Tank Pit

1030 TP-2  
0-12" Concrete w/ gravelly  
Base Material  
- Coring for TP-2 complete

1050 South/East Tank Pit on site for  
(Lt. Hill) in inspection asking about  
Tank/Tank Pit location

2 of 9

NSR

5/17/09

1000 (Time)  
Note: Small crack in Fishgloss/shed  
Tank Sand on NE corner of tank  
- Crack discovered during removal  
of insulation  
- deteriorated corner of tank location  
on same side as hole in containment  
Pit (Photos taken)

Note Coring in circle tank pit  
done in center pit trench  
(see photos)  
- Trench slopes toward the  
South end of pit.  
measure width of trench

South wall - 9 1/2"  
Center - 8"  
North wall - 6 1/2"

Average Depth below ground surface  
of trench is 30".  
Will Remasure Tank Dimension  
Tank Pit Dimension  
Containment yard dimensions

3 of 9

NSR

8/17/09

- 1100 - Break for Lunch
- 1130 - Began Measuring out Courtyard
- 1145 - Everyone took lunch  
Shower Estate broke to  
Drop off Equipment  
Jerry (Client) on site  
during lunch break

1200 - Began Coring

Tip 3  
0-7" Concrete core w/ gravel  
at base

1235 → Coring Complete  
Began measuring down  
Equipment

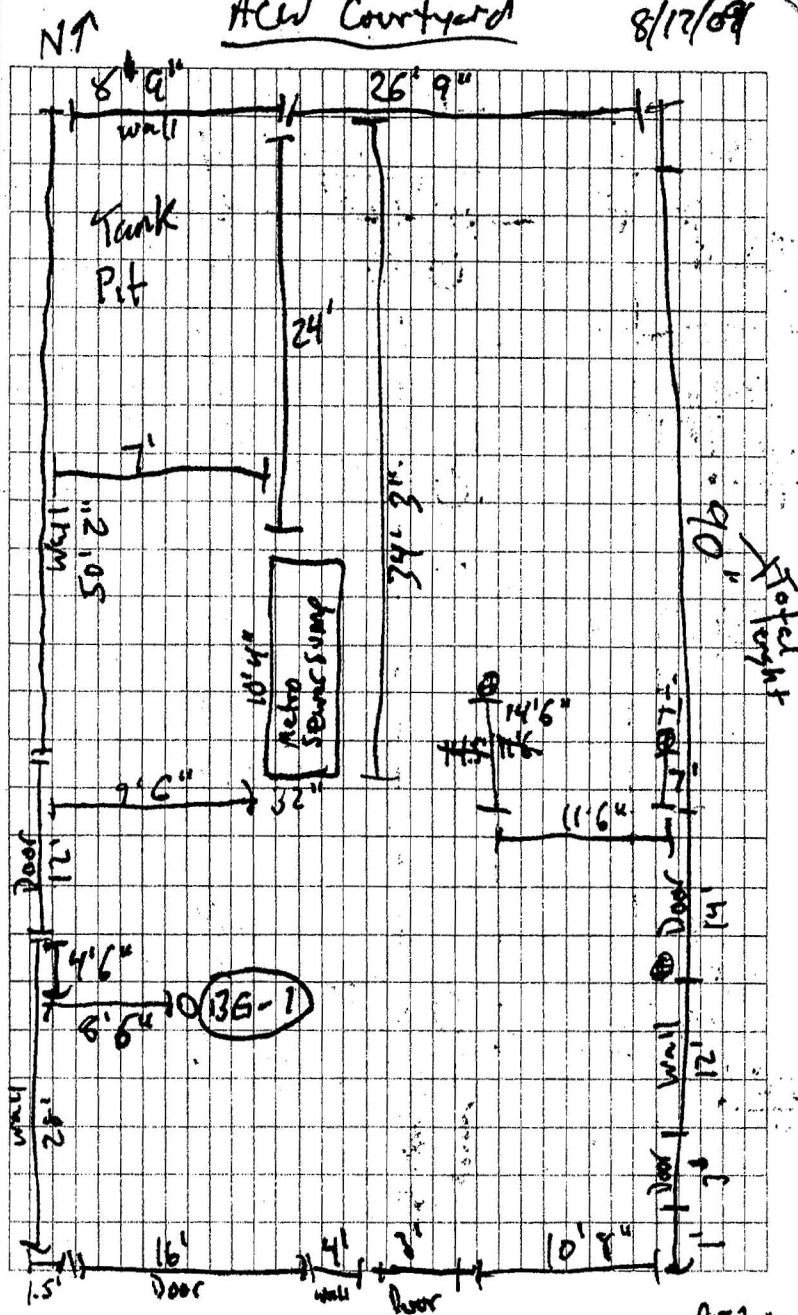
1240 Began measuring Coring locations

4 of 9

RSR

# ACEW Courtyard

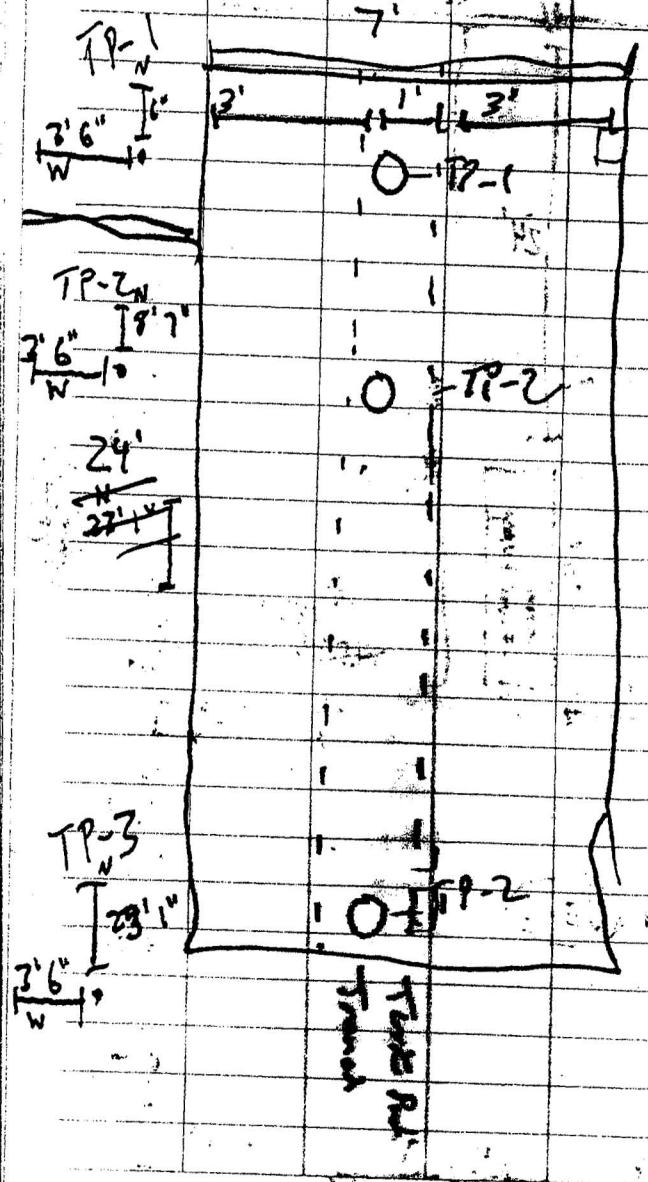
8/17/09



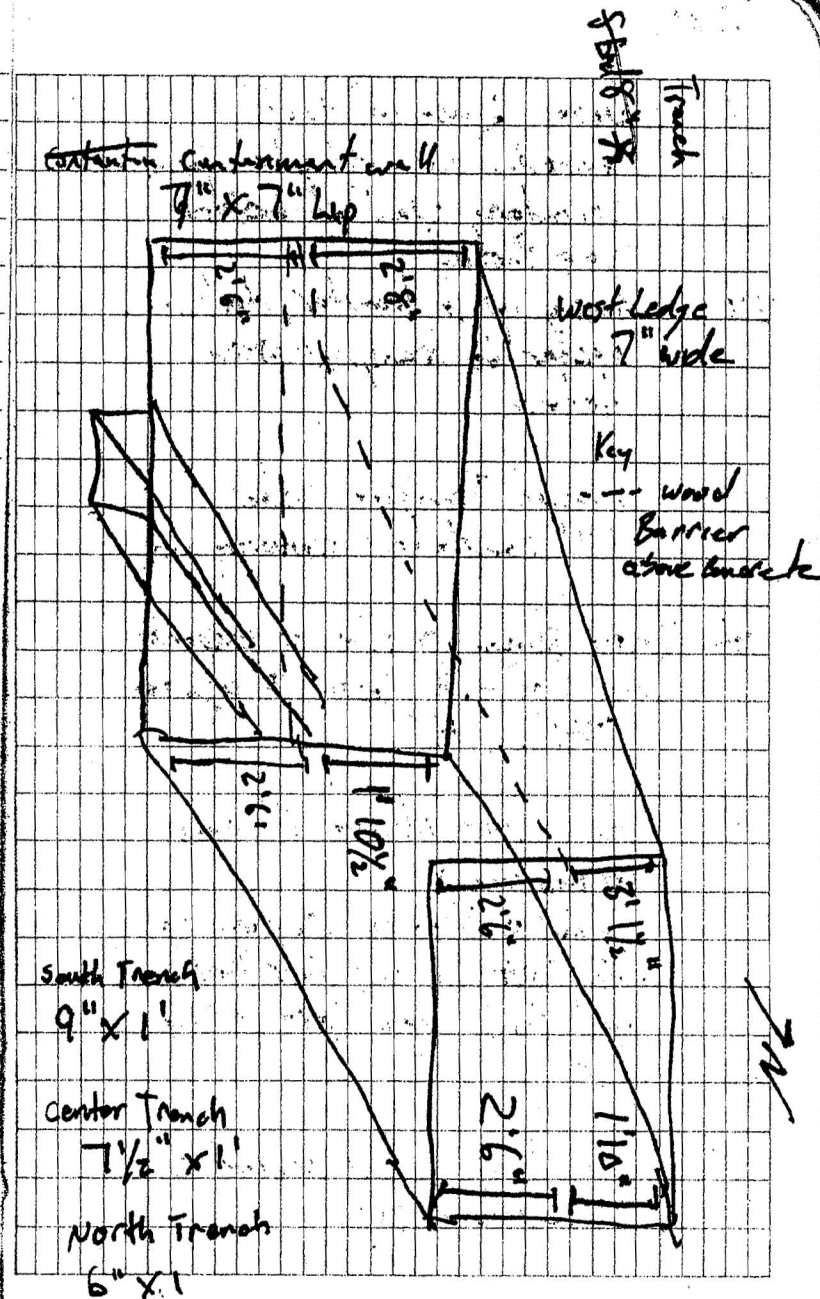
5 of 9

RSR





6 of



7 of 9



8/17/09

1315 - notes base of tank  
Corroded in multiple location  
Secondary wall at bottom  
(see photos)

1320 - Setting up to transfer drilling  
water to transportation  
tote.

1420 - Finished Transferring water  
Will complete narrowing site

Note Terry/Shaun onsite to inspect  
progress of tank closure @ approx  
1345 1245

1435 - Finish decontaminating all gear  
in equipment  
Begin putting up caution tape  
and covering up pit Tank pit  
and Tank Stage out of the  
pit

1445 - Staged. All waste adjacent to  
Containment Pit.

8 of 9

RJR

8/17/09

1515 - completed onsite  
- Reamed all mobile equipment  
- Eight empty drums left onsite  
- No Sampling completed  
- Will return tomorrow to perform  
Private Utility locate

End

9 of 9

RJR

8/18/09

onsite @ 1230

weather Sunny 80°F

Personal: Richard Rodriguez

CNI Location: Tom Edwards

### Scope

- Conduct Underground Utility Location inspection onsite in Courtyard Area
- Complete presampling task including selecting locations, clearing locations

### Site Condition

- minimal onsite traffic
- former refrigeration tank staged on East side of Courtyard
- We will be checking for underground Electric, Gas, Water/sewer, Tel-Comm lines

1 of 5

RJR

8/18/09

Sampling on site will consist of:

- (1) Rinse Tank interior
- (1) Rinse Tank Exterior
- (1) Rinse Containment Pad
- (2) Concrete chip samples, Floor & Wall
- (9) Subsurface Soils From under Containment Pad
  - (3) ~ concrete base material
  - (3) ~ 1 Ft Below containment Pad
  - (3) ~ 3 Ft Below Containment Pad
- (3) Subsurface Base Background Soil @ 6", 1', 3' or equal to Depth of Containment Pad Samples
- (1) concrete chip sample adjacent to Tank
- (3) Duplicate Soils will be Collected @ various locations
- (1) Rinse Duplicate
- (1) concrete chip sample duplicate

Total Sample ~~23~~ To be Collected

23 Total

2 of 5

RJR

8/18/09

need Containers

- (15) 8<sup>oz</sup> jars - Soaks (All Analytical covers)
- (4) 250 ml HNO<sub>3</sub> - Liquid Total Metals
- (4) 250 ml vaporized Liquid Fluoride, Chloride, Nitrate
- (4) 8<sup>oz</sup> jars chips All Analytical
- (1) 8<sup>oz</sup>

Samples Collected will be analyzed

For: Total Metals

Fluoride

Chloride

Nitrate

pH

- Additional Sample may be collected based on field observation.

Time

1320 - CNI Tim Edwards arrives on site  
Brief safety meeting and site overview  
met performed

1350 No major Electrical or gas lines detected  
under Court yard floor.

3 of 5

RSR

8/18/09

\* Investigated Silver Steel Trap SE  
of Containment Pit. Approx 2.5-3 Feet  
Deep. Completely filled with liquid.  
Liquid extremely murky / Black in color  
Sludge present at bottom. possible old  
Sump no longer in use. Recommend pumping  
out pit.

1355 Tracing Drains w/in Court yard  
Drain line running N/S in Court yard  
approx Depth

2' 4" } will measure in of  
2' 5" } site drawing  
3' 1" }

Depth increases running north from  
Drain

Drain line stops ~ 10 feet from  
property line on Spokane St.

- Could not trace other Drains located  
in Court yard - Plugged with debris  
or lines are closed

1405 Tracing Electrical located just  
inside south Rolling door

3 of 5

RSR

8/18/09

1420 - finish utility locate of Courtyard  
Turn w/ CNT off site

1425 - finish gather site measurements

1430 - finished onsite  
Called Shawn Estrada to  
give update

8/19/09

onsite @ 0820

weather Sunny warm 85°

- Scape collect 23 assorted Soil chp w/ water  
Samples on site
- Soils collected using unhand Auger
- Close up file (See 8/18/09 for Indepth <sup>scraped</sup> ~~soil~~ samples)

Personnel

Richard Rodriguez

Adam Parker

Andrew Murray

0830 Safety meeting

0840 Run to The Home Depot for supplies

900 Trench - Collected from North Conference  
Wall Hole

930 prep equipment to begin sampling

0940 - Begin Coring (Boring) Sample  
Location Bg-1

S a F 5

158

1.58

RJR



11/19/09

0942

BG-1

0-6" Concrete Core  
6"-12" Sand/gravel mix Loose,  
Tan, Dry

12-26" Sand w/ some gravel.  
Brown, loose pack, moist

26"-35" Same as Above

35"-39" Sand Dark Brown, Loose  
wet

39 1/2" obstruction @ this level  
cannot continue further  
Feels like a large rock  
or concrete slab

1015

sample location  
chosen to mimic  
Depth of the  
Tank Pit

Samples Collected @

		Time
BG-1 was backfilled	BG-1 6"	0945
and Patched w/	BG-1 30"	0951
Concrete	BG-1 39"	1005
	BG-1 30" Dry	0952

2 of 8

RIR

8/14/07

1020 Garry (ACW) onsite checking in  
1025 Strawn extending concrete obstruction

1030 Finished Backfilling BG-1 setting  
up to begin samples in Tank Pit  
studying

1035

TP-3

0-7" Concrete Core  
7"-10" Sand/gravel mix, gray, wet  
rust brown, wet, loose pack

10'-17" Sandy Silt, w/ some gravel  
Dark Brown, Moist, loose pack  
17"-22" Sandy Clayey Silt, few gravel  
Dark Brown to Black moist  
loose pack

22"-30" Silty Sand, Light Brown, loose  
moist

30"-36" Same as above Darkens with depth  
Light to darker Brown  
Samples Collected @

~~cannot be collected~~  
turn RSR

3 of 8

RSR

8/14/09

TP-3 Continued

sampled @

TP-3 6" 1051

TP-3 12" 1100

TP-3 26 1115

TP-3 6" Dup 1053

21130

TP-2

0-5" Concrete Core

9"-19" Silty Sand loose, Black

moist, wood chips mixed

in sand 1/2" → 1 1/2" chips

19-24" Sand, trace silt, loose capat

Moist

24"-36" Sand, light Brown, trace

Silt, ~~moist~~ moist loose pack

samples Collected @

TP-2 9" 1130

TP-2 15" 1135

TP-2 36" 1150

TP-2 15" Dup 1138

4.08

RJR

8/14/09

TP-1

0-12" Concrete Core

12-22" for Sand gravel mix. rock

Brown, loose, moist

22" Obstruction in Boring

1215 Break for Lunch closed up area

1315 Continue Augering @ TP-1

hammering down on obstruction

To break through obstruction

1545 22"-45" Silty Sand Brown

moist loosely packed dense

trace pebbles

1547 45"-56" Sand light to dark

Brown sorted loosely

packed moist

56"-74" sand gray loosely packed

moist well sorted

74"-77" sand silt gray wet soft

samples Collected @

TP-1 12" 1159

TP-1 20" 1209

TP-1 Dup 2" 1244

5.08 TP-1 74" 11645

RJR

8/14/09

121410 Began Collecting Risk Site Samples

1420 Warren w/ the DOE stopped by on site to check the hole we discussed the hole and the under ground grouting in the adjacent shop

1425 Sample TER-1 collected

1445 Sample TIR-1 collected

1447 Sample TIR-1 Dup collected

chip samples collected from 3 locations

- 2 from Containment Pit Floor
  - 1 from Containment Pit Wall
  - 1 from outside pit on floor
- samples placed in a 60L jar

chip sample IDs

TPBC-1, TPBC Dup TPBC-1 Dup  
TPBC TPWC-1, TPFC-1

6 of 8

FSR

8/19/09

Finish Sampling - Began cleaning up site

1730 site Demobilized, left site

1930 Finish recording and filling out Cores for sample to be sent to Tetra America Laboratories in F.F. all sample to be analyzed for Total Metals 6010/7470A pH

Tol Fluoride

" Chloride

" Nitrates

same for TCL

note: - Soil samples @ BG-1 depth were chosen to best mimic sample depth of the Containment pit.

- BG-1 ground level for Tank pit samples are approximately 2' lower than the actual ground level of site

7 of 8

FSR



8/19/09

Notes - all Soil Samples were collected using a stainless steel Hand Auger to reach all the desired depths. The Auger was decontaminated before and after each sampling location.

Chip Samples were obtained using a chisel. Chisel was decontaminated before and after each sample location.

Rinse Samples were collected using a chip method for the Tank and Containment Pit. Exterior Sample was collected using a sterile Poly Bucket to Rinse Water then Bottled in appropriate Sample Containers.

END

8 of 8

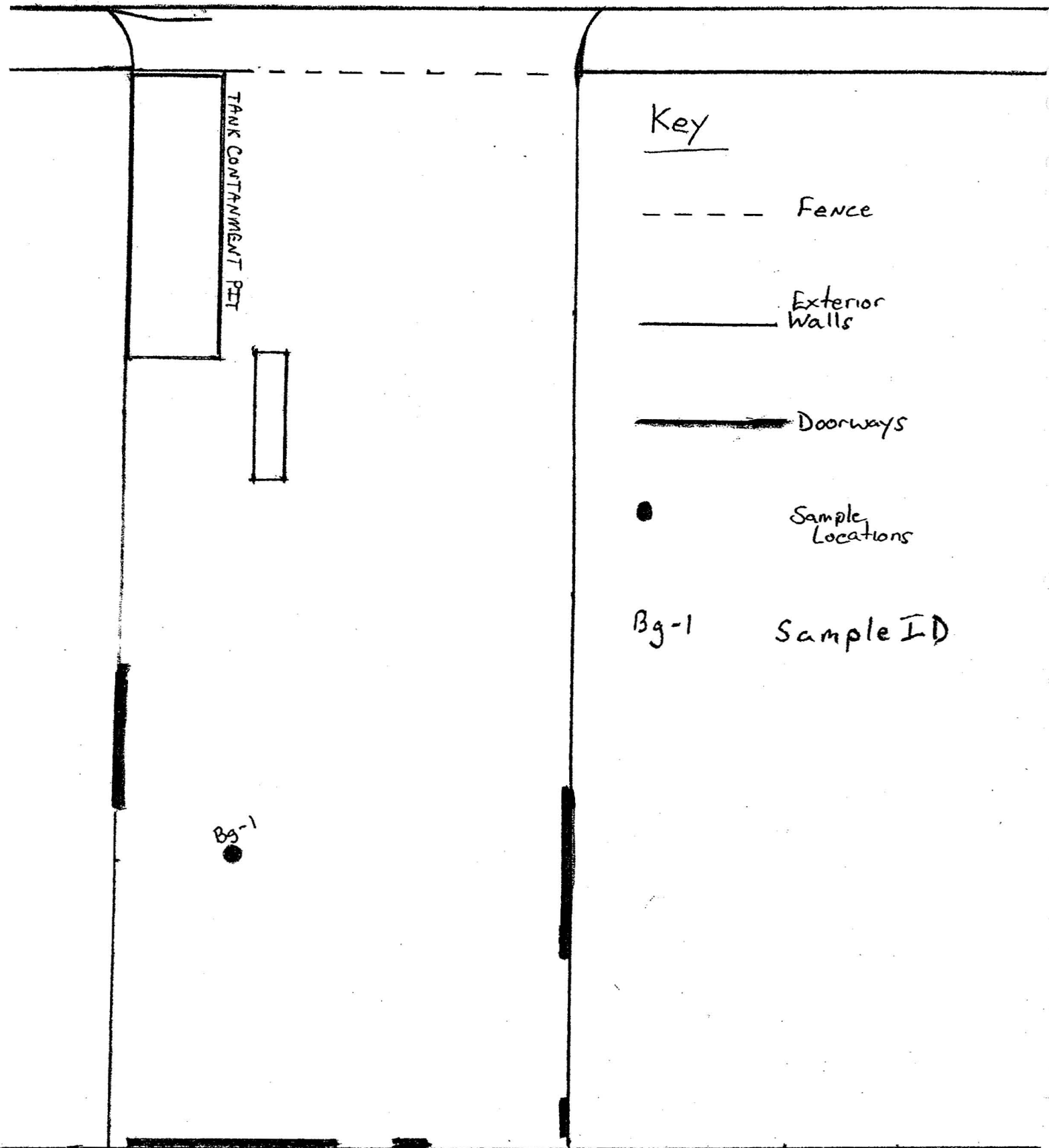
RSR



N

# Site map

1" = 10'



Alaskan Copper  
3600 E Marginal Way S  
Seattle WA 98134

Figure

# Sample Location Map

1 inch = 3 ft

N

TP-1

TPNW-1

-TP-2

-TP-3

## Key

● Soil Sample Location

--- Tank Pit

--- Trench Delineation



■ North Wall Pit Hole Sample Location

TP-1 Sample Location I.D.

Alaskan Copper  
3600 E Marginal Way S  
Seattle WA 98134

Figure 3

## Waste Disposition Records

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>WAH000035166</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>002690985 FLE</b>	
5. Generator's Name and Mailing Address <b>East Marginal - Alaska Copper &amp; Brass Company 3600 East Marginal Way Seattle, WA 98134</b>				Generator's Site Address (if different than mailing address) <b>SAME</b>		
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>				U.S. EPA ID Number <b>MAD039322250</b>		
7. Transporter 2 Company Name				U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029</b>				U.S. EPA ID Number <b>UTD991301748</b>		
Facility's Phone: <b>(435) 884-8900</b>						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
x	<b>RO. NA3082. HAZARDOUS WASTE. LIQUID. N.O.S. (CHROME LEAD), 9, PG III (5)</b>	<b>002</b>	<b>BA</b>	<b>00400</b>	<b>G</b>	<b>D007 D008</b>
14. Special Handling Instructions and Additional Information <b>1. CH386919 2Y TOTS ERG#171</b>						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name <b>Gerald A. Thompson</b>				Signature 		Month Day Year <b>08 14 09</b>
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. <input type="checkbox"/> Port of export: <input type="checkbox"/> Date leaving U.S.: <input type="checkbox"/>						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name <b>ARBEN FERKO</b>				Signature 		Month Day Year <b>08 14 09</b>
Transporter 2 Printed/Typed Name				Signature		Month Day Year
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number:						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. <b>H111</b>		2.		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name				Signature		Month Day Year



Land Disposal Restriction  
Notification Form

Page : 1 of 1

Printed Date : Aug 13, 2009

MANIFEST INFORMATION

Generator : East Marginal - Alaska Copper & Brass Compan

Address: 3600 East Marginal Way  
Seattle, WA 98134

Manifest Tracking Info.

002690985 FLE

EPA ID #: WAH000035166

Sales Order No: G72435731-004

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH386919	NON-WASTEWATER	2 (This is subject to LDR.)
EPA Waste Code			EPA Waste SubCategory	
D007			Toxicity Characteristic for Chromium	
D008			Toxicity Characteristic for Lead	

Certification

Applies to  
Manifest Line  
Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1.

Waste analysis data, where available, is attached.

Signature :

Print Name

Gerald A. Thompson

Title :

Enviro. Asst

Date :

8-14-09



# WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH386919

## A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #

WAH000035166

GENERATOR NAME:

East Marginal - Alaska Copper & Brass Company

ERATOR CODE (Assigned by Clean Harbors)

AL3361

CITY

Seattle

STATE/PROVINCE

WA

ZIP/POSTAL CODE

98134

RESS

3600 East Marginal Way

PHONE: (206) 793-3430

CUSTOMER CODE (Assigned by Clean Harbors)

AL2113

CUSTOMER NAME:

Alaskan Copper & Brass Company

ADDRESS

3200 6th Ave

CITY

Seattle

STATE/PROVINCE

WA

ZIP/POSTAL CODE

98134

## B. WASTE DESCRIPTION

WASTE DESCRIPTION: Neutralized Waste Passivation Solution

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Metal Passivation

## C. PHYSICAL PROPERTIES (at 25C or 77F)

<b>PHYSICAL STATE</b> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID 40.00 - 60.00 % SETTLED SOLID 40.00 - 60.00 % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> 1 <input checked="" type="checkbox"/> 2 3 TOP 50.00 % BY VOLUME (Approx.) MIDDLE 0.00 BOTTOM 50.00		<b>VISCOSITY (If liquid present)</b> <input checked="" type="checkbox"/> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000	<b>COLOR</b>  Dark Green	
	<b>ODOR</b> NONE <input checked="" type="checkbox"/> MILD STRONG Describe:	<b>BOILING POINT °F (°C)</b> ≤ 95 (≤ 35) 95 - 100 (35-38) 101 - 129 (38-54) <input checked="" type="checkbox"/> ≥ 130 (> 54)	<b>MELTING POINT °F (°C)</b> ≤ 140 (< 60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (> 93)	<b>TOTAL ORGANIC CARBON</b> <input checked="" type="checkbox"/> ≤ 1% 1-9% ≥ 10%	
	<b>FLASH POINT °F (°C)</b> ≤ 73 (< 23) 73 - 100 (23-38) 101 - 140 (38-60) 141 - 200 (60-93) > 200 (> 93)	<b>pH</b> ≤ 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 ≥ 12.5	<b>SPECIFIC GRAVITY</b> ≤ 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) <input checked="" type="checkbox"/> 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> ≤ 0.1 0.1 - 1.0 <input checked="" type="checkbox"/> Unknown 1.1 - 5.0 5.1 - 20.0	<b>BTU/LB (MJ/kg)</b> <input checked="" type="checkbox"/> ≤ 2,000 (< 4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (> 23.2) Actual:

## D. COMPOSITION

(List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

### CHEMICAL

AMMONIUM BIFLUORIDE

MIN -- MAX UOM

10.0000000 -- 20.0000000 %

CHROMIUM

0.0000000 -- 290.0000000 PPM

LEAD

0.0000000 -- 6.5000000 PPM

NITRIC ACID

10.0000000 -- 20.0000000 %

SEDIMENT

40.0000000 -- 60.0000000 %

SODIUM BICARBONATE

20.0000000 -- 30.0000000 %

WATER

65.0000000 -- 75.0000000 %

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? ☒ YES NO

If yes, describe, including dimensions:

Poly-vapor balls, wood grating

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES ☒ NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING: ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES ☒ NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material.

YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste.

YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS.

YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED.

YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. G02

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. W103



## E. CONSTITUENTS

These values based on testing or knowledge?

Knowledge ☒ Testing

If based on knowledge, please describe the rationale applied to identify and characterize the waste material (ex., include reference to Material Safety Data Sheets, process considerations, operating procedures).

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>
D005	BARIUM	100.0				<input checked="" type="checkbox"/>
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>
D007	CHROMIUM	5.0	290.0000	290.0000000	PPM	
D008	LEAD	5.0	6.5000	6.5000000	PPM	
D009	MERCURY	0.2				<input checked="" type="checkbox"/>
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>
D011	SILVER	5.0				<input checked="" type="checkbox"/>
<b>VOLATILE COMPOUNDS</b>						
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
<b>SEMI-VOLATILE COMPOUNDS</b>						
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
<b>PESTICIDES AND HERBICIDES</b>						
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				
<b>OTHER CONSTITUENTS</b>						
	BROMINE					<input checked="" type="checkbox"/>
	CHLORINE					<input checked="" type="checkbox"/>
	FLUORINE	13.3000	%			
	IODINE					<input checked="" type="checkbox"/>
	SULFUR					<input checked="" type="checkbox"/>
	POTASSIUM					<input checked="" type="checkbox"/>
	SODIUM					<input checked="" type="checkbox"/>
	AMMONIA	6.3000	%			
	CYANIDE AMENABLE					<input checked="" type="checkbox"/>
	CYANIDE REACTIVE					<input checked="" type="checkbox"/>
	CYANIDE TOTAL					<input checked="" type="checkbox"/>
	SULFIDE REACTIVE					<input checked="" type="checkbox"/>
<b>HOCs</b>						
<input checked="" type="checkbox"/>	NONE					
	< 1000 PPM					
	>= 1000 PPM					
<b>PCBs</b>						
<input checked="" type="checkbox"/>	NONE					
	< 50 PPM					
	>= 50 PPM					
IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?						
	YES	<input checked="" type="checkbox"/>				NO

## ADDITIONAL HAZARDS

Does this waste have any undisclosed hazards or prior incidents associated with it, which could affect the way it should be handled?

YES ☒ NO (If yes, explain)

## CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCE

EXPLOSIVE

FUMING

OSHA REGULATED CARCINOGENS

POLYMERIZABLE

RADIOACTIVE

REACTIVE MATERIAL

☒ NONE OF THE ABOVE



## REGULATORY STATUS

☐ YES ☐ NO USEPA HAZARDOUS WASTE?  
**D007 D008**

YES ☒ NO DO ANY STATE WASTE CODES APPLY?  
Texas Waste Code

YES ☒ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

☒ YES ☐ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY: **This is subject to LDR.**  
VARIANCE INFO:

YES ☒ NO IS THIS A UNIVERSAL WASTE?

YES ☒ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES ☐ NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

☒ YES ☐ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES ☒ NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES ☐ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE?

YES ☒ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES ☒ NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing  
Describe the knowledge:

## G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

RQ, NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (CHROME, LEAD), 9, PG III (5)

## H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☒ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER☒ CONTAINERIZED

1-5 CONTAINERS/SHIPMENT

STORAGE CAPACITY: 5  
CONTAINER TYPE:

CUBIC YARD BOX PALLET

☒ TOTE TANK DRUM

OTHER: DRUM SIZE: 275

## BULK LIQUID

GALLONS/SHIPMENT: 0 Min -0 Max

GAL.

## BULK SOLID

SHIPMENT UOM: TON YARD  
TONS/YARDS/SHIPMENT: 0 Min - 0 Max

## I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

## GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

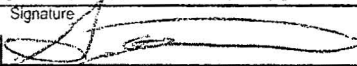

DATE

gat@alaskancopper.com

8/11/2009

This waste profile has been submitted using Clean Harbors' electronic signature system.



UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number WAH000035168	2. Page 1 of 1	3. Emergency Response Phone (800) 483-3718	4. Manifest Tracking Number 002692768 FLE	
5. Generator's Name and Mailing Address East Marginal - Alaska Copper & Brass Company 3800 East Marginal Way Seattle, WA 98134 Generator's Phone: (206) 793-3430			Generator's Site Address (if different than mailing address) SAME			
6. Transporter 1 Company Name Clean Harbors Environmental Services Inc			U.S. EPA ID Number WAD039322250			
7. Transporter 2 Company Name			U.S. EPA ID Number			
8. Designated Facility Name and Site Address Clean Harbors Env Services Inc 2247 South Highway 71 Kimball, NE 69145 Facility's Phone: (308) 235-4012			U.S. EPA ID Number NED981723513			
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RO. UN3280. WASTE CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., (NITRIC ACID, CHROMIUM), B, PG III (10)	6	CF	1200	105	W502 D007 D008
X	2. RQ. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (CHROME, LEAD), 9, PG III (5)	1	TP	75	G	D007 D008
	3.					
	4.					
14. Special Handling Instructions and Additional Information 1. CH383209 ERG#154 2. CH356313 ERG#171						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name Gerald Thompson		Signature 		Month Day Year 8 21 09		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:				
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Shan Estelz		Signature 		Month Day Year 8 21 09		
Transporter 2 Printed/Typed Name		Signature		Month Day Year		
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number:						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. H040		2. H141		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name		Signature		Month Day Year		

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.



# WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH383209

## A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #

WAH000035166

GENERATOR NAME:

East Marginal - Alaska Copper & Brass Company

ERATOR CODE (Assigned by Clean Harbors)

AL3361

CITY

Seattle

STATE/PROVINCE

WA

ZIP/POSTAL CODE

98134

RESS 3600 East Marginal Way

CUSTOMER CODE (Assigned by Clean Harbors)

AL2113

CUSTOMER NAME:

PHONE: (206) 793-3430

Alaskan Copper & Brass Company

ADDRESS 3200 6th Ave

CITY

Seattle

STATE/PROVINCE

WA

ZIP/POSTAL CODE

98134

## B. WASTE DESCRIPTION

WASTE DESCRIPTION: Contaminated Solids

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Passivation Tank Clean Out

## C. PHYSICAL PROPERTIES (at 25C or 77F)

<b>PHYSICAL STATE</b> <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b>				<b>VISCOSITY</b> (If liquid present) 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000	<b>COLOR</b> <u>Varies</u>
	1	2	3	TOP		
	% BY VOLUME (Approx.)			MIDDLE		
				BOTTOM		
				0.00		
				0.00		
				0.00		
<b>ODOR</b> NONE <input checked="" type="checkbox"/> MILD STRONG Describe:				<b>BOILING POINT °F (°C)</b> ≤ 95 (≤ 35) 95 - 100 (35-38) 101 - 129 (38-54) ≥ 130 (> 54)		<b>MELTING POINT °F (°C)</b> ≤ 140 (≤ 60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (> 93)
						<b>TOTAL ORGANIC CARBON</b> ≤ 1% 1-9% <input checked="" type="checkbox"/> ≥ 10%

<b>FLASH POINT °F (°C)</b> ≤ 73 (< 23) 73 - 100 (23-38) 101 - 140 (38-60) 141 - 200 (60-93) > 200 (> 93)	<b>pH</b> <input checked="" type="checkbox"/> ≤ 2 2.1 - 6.9 7 (Neutral) 7.1 - 12.4 ≥ 12.5	<b>SPECIFIC GRAVITY</b> ≤ 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) ≥ 1.2 (e.g. Methylene Chloride)	<b>ASH</b> ≤ 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0 <input checked="" type="checkbox"/> > 20 Unknown	<b>BTU/LB (MJ/kg)</b> ≤ 2,000 (< 4.6) <input checked="" type="checkbox"/> 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (> 23.2) Actual:
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## D. COMPOSITION

(List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
AMMONIUM BIFLUORIDE	5.0000000	10.0000000	%
CHROMIUM	290.0000000	290.0000000	PPM
FLOOR DRY	5.0000000	10.0000000	%
LEAD	6.5000000	6.5000000	PPM
NITRIC ACID	10.0000000	15.0000000	%
PLASTIC GRATING	30.0000000	40.0000000	%
VAPOR BARRIER BALLS	30.0000000	40.0000000	%
WOOD DEBRIS	10.0000000	20.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? ☒ YES NO

If yes, describe, including dimensions: grating

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES ☒ NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING: ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES ☒ NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. G02

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. W119



## E. CONSTITUENTS

these values based on testing or knowledge?

Knowledge ☒ Testing

If based on knowledge, please describe the rationale applied to identify and characterize the waste material (ex., include reference to Material Safety Data Sheets, process considerations, operating procedures).

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>
D005	BARIUM	100.0				<input checked="" type="checkbox"/>
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>
D007	CHROMIUM	5.0	290.0000	290.0000000	PPM	
D008	LEAD	5.0	6.5000	6.5000000	PPM	
D009	MERCURY	0.2				<input checked="" type="checkbox"/>
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>
D011	SILVER	5.0				<input checked="" type="checkbox"/>
<b>VOLATILE COMPOUNDS</b>						
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
<b>SEMI-VOLATILE COMPOUNDS</b>						
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
<b>PESTICIDES AND HERBICIDES</b>						
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				
<b>OTHER CONSTITUENTS</b>						
					MAX	UOM
	BROMINE					<input checked="" type="checkbox"/>
	CHLORINE					<input checked="" type="checkbox"/>
	FLUORINE					<input checked="" type="checkbox"/>
	IODINE					<input checked="" type="checkbox"/>
	SULFUR					<input checked="" type="checkbox"/>
	POTASSIUM					<input checked="" type="checkbox"/>
	SODIUM					<input checked="" type="checkbox"/>
	AMMONIA					<input checked="" type="checkbox"/>
	CYANIDE AMENABLE					<input checked="" type="checkbox"/>
	CYANIDE REACTIVE					<input checked="" type="checkbox"/>
	CYANIDE TOTAL					<input checked="" type="checkbox"/>
	SULFIDE REACTIVE					<input checked="" type="checkbox"/>
<b>HOCs</b>						
<input checked="" type="checkbox"/>	NONE					
	< 1000 PPM					
	>= 1000 PPM					
<b>PCBs</b>						
<input checked="" type="checkbox"/>	NONE					
	< 50 PPM					
	>= 50 PPM					
IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?						
	YES					<input checked="" type="checkbox"/>
	NO					<input type="checkbox"/>

## ADDITIONAL HAZARDS

IS THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☒ NO (If yes, explain)

## CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCE

EXPLOSIVE

FUMING

OSHA REGULATED CARCINOGENS

POLYMERIZABLE

RADIOACTIVE

REACTIVE MATERIAL

☒ NONE OF THE ABOVE



UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number WAH000035166	2. Page 1 of 1	3. Emergency Response Phone (900) 483-3719	4. Manifest Tracking Number 002692834 FLE
5. Generator's Name and Mailing Address East Marginal - Alaska Copper & Brass Company 3223 6th Avenue Seattle, WA 98134 Generator's Phone: (206) 2204			Generator's Site Address (if different than mailing address) 3800 East Marginal Way Seattle, WA 98134		
6. Transporter 1 Company Name Clean Harbors Environmental Services Inc			U.S. EPA ID Number WA0039322250		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Clean Harbors Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 84029 Facility's Phone: (435) 394 8900			U.S. EPA ID Number UTD991301748		
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity
			No.	Type	12. Unit Wt./Vol.
	X	1. RO. NA3062. HAZARDOUS WASTE. LIQUID. N.O.S.. (CHROME. LEAD), S, PG III (5)	SS	Dm	30
		2.			
		3.			
		4.			
13. Waste Codes D007 D008					
14. Special Handling Instructions and Additional Information 1. CH388919 ERG#171 1-SSDm					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Offor's Printed/Typed Name Gerald Thompson		Signature 		Month Day Year 09 15 09	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Adam Parker		Signature 		Month Day Year 09 15 09	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
18. Discrepancy					
18a. Discrepancy Indication: Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number:					
13b. Alternate Facility (or Generator)			U.S. EPA ID Number		
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)					Month Day Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1. H111	2.	3.	4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest: except as noted in Item 18a					
Printed/Typed Name		Signature		Month Day Year	

Clean Harbors has the appropriate permits for and will accept the waste the Generator is shipping.





## Page : 1 of 1

Printed Date : Sep 03, 2009

## MANIFEST INFORMATION

Manifest Tracking Info.

CC-BY 2.5 30 FL

Sales Order No: G72435731-004

### LINE ITEM INFORMATION

EPA Waste Code	EPA Waste SubCategory
D007	Toxicity Characteristic for Chromium
D008	Toxicity Characteristic for Lead

### Certification

Applies to  
Manifest Line  
Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1

Waste analysis data, where available, is attached.

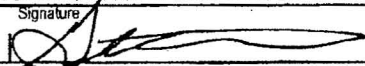
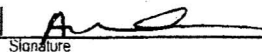
Signature :

Print Name

Title :

Date :

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number WAH000035166		2. Page 1 of 1		3. Emergency Response Phone (800) 483-3718		4. Manifest Tracking Number 002690986		FILE			
5. Generator's Name and Mailing Address East Marginal - Alaska Copper & Brass Company 3600 East Marginal Way Seattle, WA 98134 (206) 793-3430						Generator's Site Address (if different than mailing address) SAME							
6. Transporter 1 Company Name Clean Harbors Environmental Services Inc						U.S. EPA ID Number MAD039322250							
7. Transporter 2 Company Name						U.S. EPA ID Number							
8. Designated Facility Name and Site Address Clean Harbors Env Services Inc 2247 South Highway 71 Kimball, NE 69145 (308) 235-4012						U.S. EPA ID Number NED981723513							
Facility's Phone:													
9a. HM		9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				10. Containers No. Type		11. Total Quantity		12. Unit Wt./Vol.		13. Waste Codes	
1		RO. UN3260. WASTE CORROSIVE SOLID. ACIDIC. INORGANIC. N.O.S., (NITRIC ACID, CHROMIUM), 8, PG III (10)				005 CF		02750		P		WSC2 D007 D008	
2.													
3.													
4.													
14. Special Handling Instructions and Additional Information 1. CH383269 SYF/bm ERG#154													
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(e) (if I am a large quantity generator) or (f) (if I am a small quantity generator) is true.													
Generator's/Officer's Printed/Typed Name GREGORY A. THOMPSON						Signature 		Month 08		Day 14		Year 09	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:													
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name ARBEN FERKO Signature  Month 08 Day 14 Year 09 Transporter 2 Printed/Typed Name Signature Month Day Year													
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: 18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year													
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. H040 2. 3. 4.													
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year													

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE IF REQUIRED:

Ole on Harbor has the appropriate permits for and will accept the waste the generator is shipping.

AKC-0019038



ENVIRONMENTAL SERVICES®

MANIFEST INFORMATION

Land Disposal Restriction  
Notification Form

Page : 1 of 1

Printed Date : Aug 13, 2009

Generator : East Marginal - Alaska Copper & Brass Compan

Address: 3600 East Marginal Way  
Seattle, WA 98134

EPA ID #: WAH000035166

Manifest Tracking Info.

002690986 FLE

Sales Order No: G72435731-004

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH383209	NON-WASTEWATER	2 (This is subject to LDR.)

EPA Waste Code

D007

D008

EPA Waste SubCategory

Toxicity Characteristic for Chromium

Toxicity Characteristic for Lead

Certification

Applies to  
Manifest Line  
Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1.

Waste analysis data, where available, is attached.

Signature :

Print Name

Gerald Thompson

Title :

Enviro. Asst

Date :

8-14-09





# WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH383209

## A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #  
GENERATOR CODE (Assigned by Clean Harbors)  
ADDRESS

WAH000035166  
AL3361

CUSTOMER CODE (Assigned by Clean Harbors)  
ADDRESS

AL2113

GENERATOR NAME:  
CITY

CUSTOMER NAME:  
CITY

East Marginal - Alaska Copper & Brass Company

STATE/PROVINCE WA ZIP/POSTAL CODE 98134

PHONE: (206) 793-3430

Alaskan Copper & Brass Company

STATE/PROVINCE WA ZIP/POSTAL CODE 98134

## B. WASTE DESCRIPTION

WASTE DESCRIPTION: Contaminated Solids

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Passivation Tank Clean Out

## C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE		NUMBER OF PHASES/LAYERS		VISCOSITY (If liquid present)		COLOR	
<input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID		1	2	3	TOP	0.00	
POWDER		% BY VOLUME (Approx.)		MIDDLE	0.00		Varies
MONOLITHIC SOLID				BOTTOM	0.00		
LIQUID WITH NO SOLIDS							
LIQUID/SOLID MIXTURE							
% FREE LIQUID							
% SETTLED SOLID							
% TOTAL SUSPENDED SOLID							
SLUDGE							
GAS/AEROSOL							
		ODOR		BOILING POINT °F (°C)		MELTING POINT °F (°C)	
		NONE		<= 95 (<=35)		< 140 (<60)	
		<input checked="" type="checkbox"/> MILD		95 - 100 (35-38)		140-200 (60-93)	
		STRONG		101 - 129 (38-54)		<input checked="" type="checkbox"/> > 200 (>93)	
		Describe:		>= 130 (>54)		TOTAL ORGANIC CARBON	
						<= 1%	
						1-9%	
						<input checked="" type="checkbox"/> >= 10%	
FLASH POINT °F (°C)		pH		SPECIFIC GRAVITY		ASH	
< 73 (<23)	<input checked="" type="checkbox"/> <= 2	< 0.8 (e.g. Gasoline)		< 0.1		< 2,000 (<4.6)	
73 - 100 (23-38)	2.1 - 6.9	0.8-1.0 (e.g. Ethanol)		0.1 - 1.0		<input checked="" type="checkbox"/> 2,000-5,000 (4.6-11.6)	
101 -140 (38-60)	7 (Neutral)	<input checked="" type="checkbox"/> 1.0 (e.g. Water)		1.1 - 5.0		5,000-10,000 (11.6-23.2)	
141 -200 (60-93)	7.1 - 12.4	1.0-1.2 (e.g. Antifreeze)		5.1 - 20.0		> 10,000 (>23.2)	
> 200 (>93)	>= 12.5	> 1.2 (e.g. Methylene Chloride)				Actual:	

## D. COMPOSITION

(List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
AMMONIUM BIFLUORIDE	5.00000000	10.00000000	%
CHROMIUM	290.00000000	290.00000000	PPM
FLOOR DRY	5.00000000	10.00000000	%
LEAD	6.50000000	6.50000000	PPM
NITRIC ACID	10.00000000	15.00000000	%
PLASTIC GRATING	30.00000000	40.00000000	%
VAPOR BARRIER BALLS	30.00000000	40.00000000	%
WOOD DEBRIS	10.00000000	20.00000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")?

☒ YES NO

If yes, describe, including dimensions:

grating

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM?

YES ☒ NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL?

YES ☒ NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material.

YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste.

YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS.

YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED.

YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. G02

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. W119



## E. CONSTITUENTS

Are these values based on testing or knowledge?

Knowledge ☐ Testing ☒

If based on knowledge, please describe the rationale applied to identify and characterize the waste material (ex., include reference to Material Safety Data Sheets, process considerations, operating procedures).

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE	
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>	
D005	BARIUM	100.0				<input checked="" type="checkbox"/>	
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>	
D007	CHROMIUM	5.0	290.0000	290.0000000	PPM		
D008	LEAD	5.0	6.5000	6.5000000	PPM		
D009	MERCURY	0.2				<input checked="" type="checkbox"/>	
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>	
D011	SILVER	5.0				<input checked="" type="checkbox"/>	
VOLATILE COMPOUNDS				OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
D018	BENZENE	0.5		BROMINE			<input checked="" type="checkbox"/>
D019	CARBON TETRACHLORIDE	0.5		CHLORINE			<input checked="" type="checkbox"/>
D021	CHLOROBENZENE	100.0		FLUORINE			<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0		IODINE			<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5		SULFUR			<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7		POTASSIUM			<input checked="" type="checkbox"/>
D035	METHYLETHYL KETONE	200.0		SODIUM			<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7		AMMONIA			<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5		CYANIDE AMENABLE			<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2		CYANIDE REACTIVE			<input checked="" type="checkbox"/>
SEMI-VOLATILE COMPOUNDS				CYANIDE TOTAL			<input checked="" type="checkbox"/>
D023	o-CRESOL	200.0		SULFIDE REACTIVE			<input checked="" type="checkbox"/>
D024	m-CRESOL	200.0					
D025	p-CRESOL	200.0					
D026	CRESOL (TOTAL)	200.0					
D027	1,4-DICHLOROBENZENE	7.5					
D030	2,4-DINITROTOLUENE	0.13					
D032	HEXACHLOROBENZENE	0.13					
D033	HEXACHLOROBUTADIENE	0.5					
D034	HEXACHLOROETHANE	3.0					
D036	NITROBENZENE	2.0					
D037	PENTACHLOROPHENOL	100.0					
D038	PYRIDINE	5.0					
D041	2,4,5-TRICHLOROPHENOL	400.0					
D042	2,4,6-TRICHLOROPHENOL	2.0					
PESTICIDES AND HERBICIDES							
D012	ENDRIN	0.02					
D013	LINDANE	0.4					
D014	METHOXYCHLOR	10.0					
D015	TOXAPHENE	0.5					
D016	2,4-D	10.0					
D017	2,4,5-TP (SILVEX)	1.0					
D020	CHLORDANE	0.03					
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008					

**HOCs**  
☒ NONE  
    < 1000 PPM  
    >= 1000 PPM

**PCBs**  
☒ NONE  
    < 50 PPM  
    >= 50 PPM  
  
IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?  
YES ☒ NO

## ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☒ NO (If yes, explain)

## CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCE

EXPLOSIVE

FUMING

OSHA REGULATED CARCINOGENS

POLYMERIZABLE

RADIOACTIVE

REACTIVE MATERIAL

☒ NONE OF THE ABOVE



## F. REGULATORY STATUS

☒ YES NO USEPA HAZARDOUS WASTE?  
**D007 D008**

☒ YES NO DO ANY STATE WASTE CODES APPLY?  
**WSC2**  
Texas Waste Code

YES ☒ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

☒ YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY: **This is subject to LDR.**  
VARIANCE INFO:

YES ☒ NO IS THIS A UNIVERSAL WASTE?

YES ☒ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☒ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES ☒ NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS  $\geq 500$  PPM?

YES ☒ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE  $\geq .3$  KPA (.044 PSIA)?

YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE  $> 77$  KPA (11.2 PSIA)?

YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE?

YES ☒ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES ☒ NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB)  $> 10$  Mg/year?  
What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing  
Describe the knowledge:

## G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

**RQ, UN3260, WASTE CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., (NITRIC ACID, CHROMIUM), 8, PG III (10)**

## H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☒ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER☒ CONTAINERIZED

1-1 CONTAINERS/SHIPMENT

STORAGE CAPACITY: 1

CONTAINER TYPE:

☒ CUBIC YARD BOX PALLET

TOTE TANK DRUM

OTHER: DRUM SIZE:

BULK LIQUID

GALLONS/SHIPMENT: 0 Min - 0 Max

GAL.

BULK SOLID

SHIPMENT UOM:

TON

YARD

TONS/YARDS/SHIPMENT: 0 Min - 0 Max

## I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

**Customer request incineration for this waste stream.**

## GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

gat@alaskancopper.com

8/11/2009

This waste profile has been submitted using Clean Harbors' electronic signature system.

# **ACW 2009 King County Industrial Wastewater Discharge Permit Application**

Industrial Waste Program  
**Wastewater Discharge  
Permit Application**

---



**King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division

---

1

You will find detailed instructions for completing each section of this application and each required exhibit in the enclosed packet, "Wastewater Discharge Permit Application Instructions and Guidelines." Review the entire application and instruction packet carefully before completing any part of the application.

- Submit one application for each site.
- King County Industrial Waste (KCIW) does not require an application fee. Once KCIW determines that you require a permit, KCIW will bill you prior to issuing you a draft permit.
- Answer all questions and include the required exhibits. Incomplete applications will be returned to you.
- If you do not have an answer for the requested information, indicate so and explain why.
- Indicate "N/A" if a section does not apply to your operations.
- Use additional pages, if needed.
- Send three copies of the completed application and exhibits to:

King County Industrial Waste  
130 Nickerson Street, Suite 200  
Seattle, WA 98109-1658

### SECTION A – BUSINESS NAMES AND ADDRESSES

APPLICANT BUSINESS AND/OR PROJECT NAME: Alaskan Copper Works	
ADDRESS OF SITE DISCHARGING WASTEWATER: (If no address, indicate cross streets.)	BUSINESS MAILING ADDRESS:
3600 East Marginal	PO Box 3546
Site Address	Mailing Address
Seattle, WA 98134	Seattle, WA 98134
City, State Zip Code	City, State Zip Code

PRIMARY PERSON TO BE CONTACTED ABOUT THIS APPLICATION:	
James Brown	Operations Manager
Name	Title (e.g., President, Consultant, On-Site Manager)
3200 6 <sup>th</sup> Ave. South	(206) 382-6572
Mailing Address	Telephone No.
Seattle, WA 98134	(206) 793-3430
City, State Zip Code	24-Hour Emergency Phone No.
	(206) 382-6590
E-Mail Address	FAX No.

SECONDARY PERSON TO BE CONTACTED ABOUT THIS APPLICATION:	
Bill Rosen	CEO
Name	Title (e.g., President, Consultant, On-Site Manager)
3200 6 <sup>th</sup> Ave. South	(206) 623-5800
Mailing Address	Telephone No.
Seattle, WA 98134	(206) 954-0069
City, State Zip Code	24-Hour Emergency Phone No.
	(206) 382-7346
E-Mail Address	FAX No.

King County Wastewater Discharge Permit Application

2

**SECTION B - GENERAL BUSINESS INFORMATION****1. NATURE OF BUSINESS**

Briefly describe your business and the main activities producing wastewater at the applicant site (type of processing, manufacturing, service, remediation).

Passivation of fabricated stainless steel pipe and fittings using a 10% nitric acid solution bath. We are renewing an existing permit.

**2. PERTINENT IDENTIFICATION NUMBERS AND PERMITS**

Standard Industrial Classification (SIC) 3498

EPA WAD No. WAD 980738546

Water/Sewer Agency Seattle PUD

and Account No. 2-530168-245001

Water Meter No(s). PRE 00019171-1

Current King County Permit No. 7201

Date Business Started at this Site 1913

Environmental Control Permits Issued for Applicant Site:

NPDES Permit #503-000139

PSAPCA Registration #16300

**SECTION C - PRODUCT AND PROCESS DESCRIPTION****1. DAILY AND SEASONAL VARIATIONS**

	Number of Operating Days/Year	Circle Days You Generally Discharge and Provide Number of Hours Discharging on Those Days								Number of Employees/Shift		
		Mon	Tue	Wed	Thur	Fri	Sat	Sun	Holiday	Day	Night	Swing
Average	30	0	0	0	0	0				2	0	0
Maximum	45	1	1	1	1	1				3	0	0

**2. BUSINESS ACTIVITIES AND PRODUCTS**

Business activities include manufacturing, processing, and remediation activities.

Business Activity	Type of Product or Brand Name	Daily Quantities	
		Average	Maximum
Fabrication	Pipe and fittings	0	100 ft.



3

**3. RAW MATERIALS AND CHEMICALS USED IN THE PROCESS**

Brand Name	Chemical or Actual Name	Purpose	Daily Quantities Used		Tank Volume	Working Concentration
			Average	Maximum		
Nitric acid	Nitric acid	Passivating	0	50 gal.	3000 gal.	10%
Ammonium bifluoride	Ammonium bifluoride	Additive to nitric bath	0	16 lbs.		
Caustic soda	Sodium hydroxide	Neutralizer	0	63 lbs.	55 gal.	50%

**4. INDUSTRIAL WASTEWATERS DISCHARGED TO KING COUNTY SEWERS**

- (1) Enter a brief description and assign a number for each process (add more lines if necessary). Also show these process numbers in Exhibits A and B.
- (2) Indicate frequency of discharge: either continuously discharged when generated, or stored and discharged in batches.

Process Number	Process That Generates Wastewater	Substances Discharged to the Sewer	Type of Pretreatment	Frequency of Discharge (continuous or batch)	Daily Quantity Discharged in Gallons	
					Average	Maximum
1	Drag out from bath	Cu, Ni, Cr, Zn	pH adjustment	Continuous	0	1000

**5. LIQUID WASTES AND SLUDGES REMOVED BY MEANS OTHER THAN KING COUNTY SEWERS**

Enter annual, monthly, or daily volume, or volume of each removal. Indicate unit of measurement.

Type of Waste/Substance	Means of Removal	Frequency	Volume
Treatment sludge	TSDf	Once a year	55 gal.

**6. PROPOSED DURATION OF WASTEWATER DISCHARGE: Life of the permit.**

King County Wastewater Discharge Permit Application



4

**SECTION D – WATER BALANCE****1. WATER BALANCE TABLE**

- (1) Enter the appropriate letter for the water source:  
 a.) City Service b.) Private Well c.) Reclaimed Water  
 d.) Raw Materials e.) Industrial Storm Water f.) Groundwater
- (2) Enter the appropriate letter for the discharge point:  
 a.) Sewer b.) Storm Drain c.) Receiving Water d.) Waste Hauler e.) Evaporation f.) Product  
 If the discharge is entering the sewer, also indicate the side sewer (ss) number, if available.
- (3) You must provide documentation of the water balance calculations provided in this table.  
 (See directions for Exhibit I.)

Type of Consumption/Discharge	Water In:			Water Out:		
	Water Use			Water Discharge or Loss		
	Water Source (1)	Average (gals/day)	Maximum (gals/day)	Discharge Point (2)	Average (gals/day)	Maximum (gals/day)
Industrial processing water/wastewater	a	5	1000	a	5	1000
Contact cooling water	N/A			N/A		
Non-contact cooling water	N/A			N/A		
Boiler and cooling tower feed/blowdown	N/A			N/A		
Water Incorporated into product	N/A			N/A		
Sanitary water/wastewater	a	50	75	a	50	75
Industrial storm water	e	2669	2669	b	2669	2669
Plant washing water/wastewater	N/A			N/A		
Construction dewatering	N/A			N/A		
Groundwater remediation	N/A			N/A		
Site Irrigation	N/A			N/A		
Evaporation	—	—	—			
Other: (please indicate)						
TOTALS:	—	2724	3744	—	2724	3744

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**SECTION E - SUPPORTING EXHIBITS**

Please see instructions for information on how to complete the following exhibits:

- Exhibit A:** Schematic Flow Diagram (required)
- Exhibit B:** Site Layout (required)
- Exhibit C:** Planned Changes in Pretreatment or Waste Disposal Practices
- Exhibit D:** Analytical or Historical Data
- Exhibit E:** Spill Prevention and Containment Plan
- Exhibit F:** Tank Capacities and Concentrations
- Exhibit G:** Hydrogeologic Reports for Groundwater Remediation
- Exhibit H:** Engineering Report (Required only if you have wastewater pretreatment systems or are intending to install such systems.)
- Exhibit I:** Documentation of Water Balance Calculations

**SECTION F - CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James Brown

Printed Name

Operations Manager

Title

James Brown

Signature

8/28/09

Date

This information is available in alternative formats for people with disabilities on request at 206-263-3000 (voice) or 711 (TTY).

**TTO CERTIFICATION STATEMENT**  
**WASTEWATER DISCHARGE PERMIT RENEWAL APPLICATION**  
**ALASKAN COPPER WORKS - 3600 EAST MARGINAL WAY S.**  
**AUGUST 2009**

"Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitations (or pretreatment standard) for Total Toxic Organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since the filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the permitting (or control) authority.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name: James Brown

Title: Operations Manager

Signature: James Brown

Date: 8/28/09

**LIST OF EXHIBITS  
WASTEWATER DISCHARGE PERMIT RENEWAL APPLICATION  
ALASKAN COPPER WORKS - 3600 EAST MARGINAL WAY  
AUGUST 2009**

**Exhibit A:** Schematic Flow Diagram

**Exhibit A-1:** Process Description - Acid Yard Effluent Treatment System

**Exhibit B:** Site Layout

**Exhibit C:** Planned Changes In Pretreatment or Waste Disposal Practices (**None**)

**Exhibit D:** Analytical or Historical Data (**Not Applicable** - *This exhibit is not required for existing dischargers applying for a permit renewal unless adding a new process*).

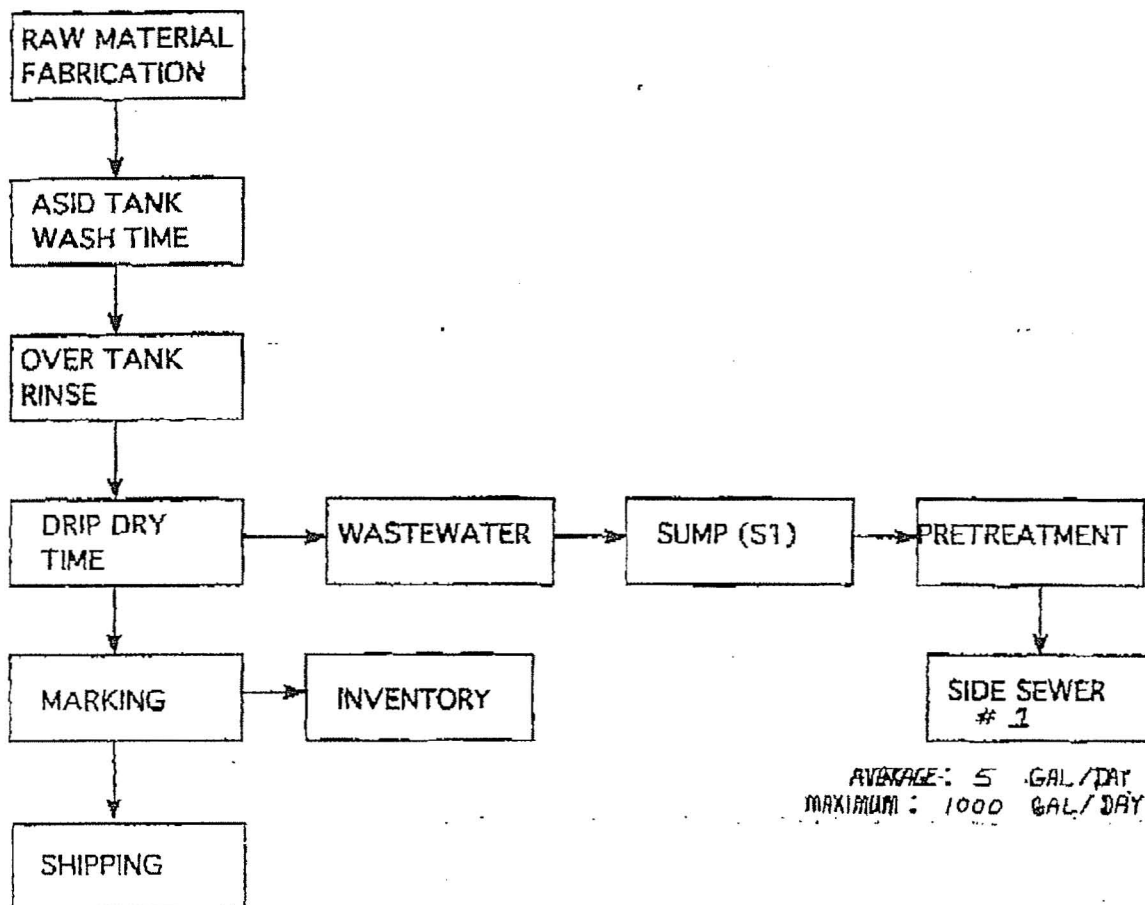
**Exhibit E:** Spill Prevention and Containment Plan

**Exhibit F:** Tank Capacities and Concentrations

**Exhibit G:** Hydrogeologic Reports for Groundwater Remediation (**Not Applicable**)

**Exhibit H:** Engineering Report (**Not Applicable** - *Permit renewal with no process changes*)

**Exhibit I:** Documentation of Water Balance Calculations

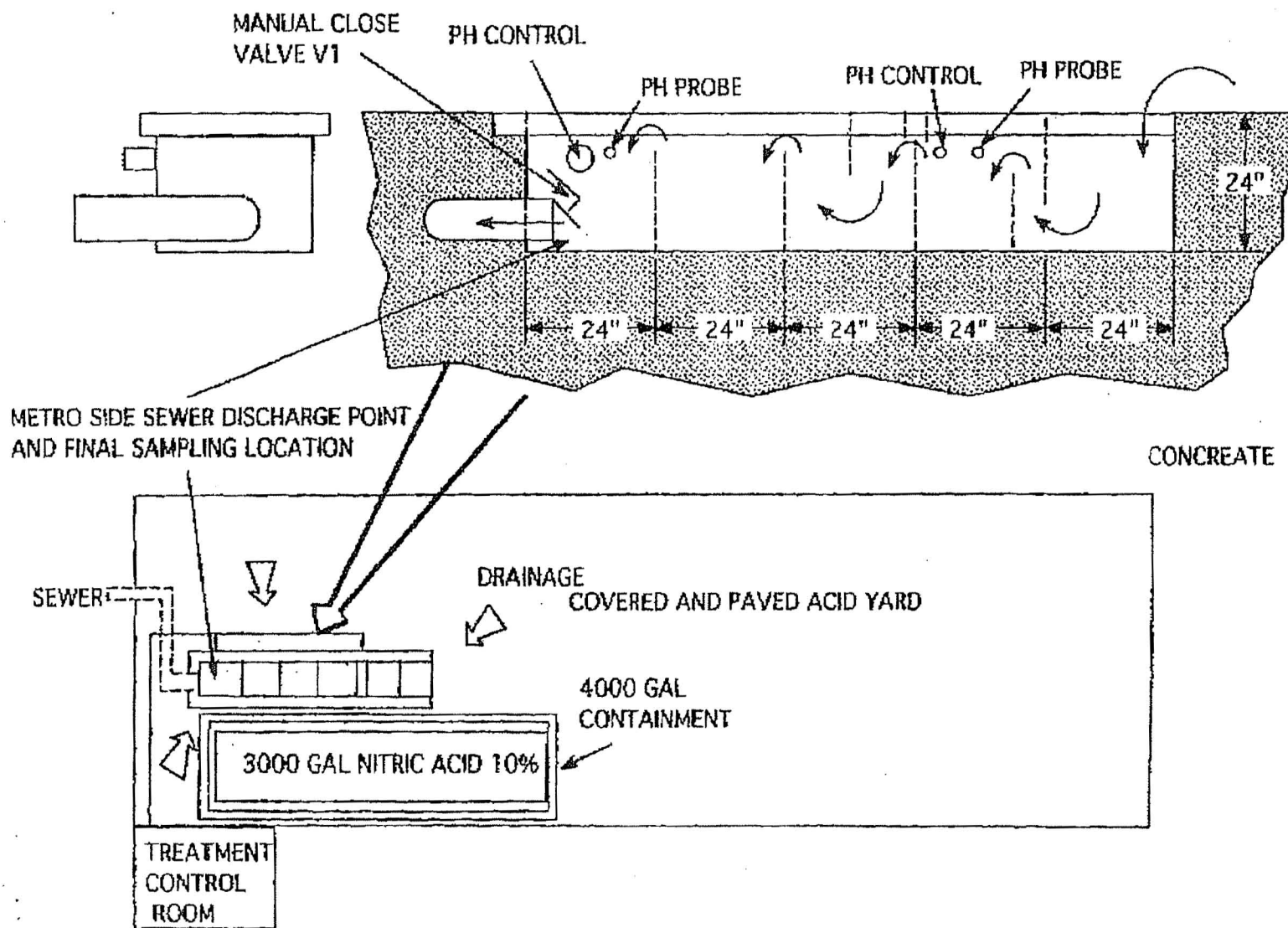
FLOW DIAGRAM FOR EXHIBIT A  
3600 E.M.

①

A PROCESS THAT GENERATES WASTEWATER

EXHIBIT A PROCESS #1  
EXHIBIT F

# PROCESS SUMP 3600 E MARGINAL



## SYSTEM PROCESS - EXHIBIT A-1

### ACID YARD DRAG OUT EFFLUENT TREATMENT SYSTEM ( )

The main objective of the treatment process is to maintain discharge levels within Metro permit levels. Secondary objective is to support manufacturing production with a maximum amount of system up time.

The treatment system is divided into several interacting sub-systems, they are described as follows:

1. Fluid collection (sump)
2. Primary filtration
3. Sediment settling and extraction
4. Sodium hydroxide neutralizing
5. Process monitoring and control
6. Metro discharge

1. The process begins with all process fluids that arrive at the sump

The sump collects drag-out and other process fluids via gravity flow along floor.

Sump contains:  
PH monitor #1 (probe)

Air operated agitator (aerator)

Sodium hydroxide (systex) discharge  
Clean (treated) discharge to metro discharge pit

The treatment system is divided into several interacting sub-systems, they are described as follows:

2. Primary filtration;

This function takes place on sump

The filter is a screen basket and is intended to remove large (>.125 dia.) particulates. Filter element cleaning is to take place weekly (at minimum).

3. Sediment settling;

This function is performed by the addition of a Flocculant (delta flocc) via pump P1 into the : SUMMP Flocculant is mixed @ a ratio of 90 grams flocculant to 30 gallons water in 55 gallon flocculant tank. After mixing with water, flocculant has a shelf life of 128 hours (5.33 days) Mix only enough to assure complete usage within the allotted shelf life. Smaller quantities can be mixed at 3 grams (delta flocc) for each gallon of water.

The rate of flocculant injection is 0.5 GPM

Fluid with flocculant added is pumped into first stage settling tank. The pH level of this fluid is purposely held to a pH8-10 level to promote a higher settling efficiency. Via a gravity/siphon action, fluid is transferred from first stage tank to second stage settling tank. Process thru-put is limited to approximately 6.0 gallons per minute to allow enough settling time for discharge effluent to meet permit requirements. This flow rate should not be modified without considerable testing of permit output parameters.

Sediment removal from settling tanks is accomplished daily by:  
Shutting treatment system off AND CLOSING OUTLET V1

Settled sediment from 2nd settling tank is then fed into holding tanks  
Wash inside of tank with hose Minimize water usage.

Decant fluid from first stage settling tank into empty 2nd stage settling tank

Drain sediment from 1st stage settling tank to holding tanks

Wash inside of tank with hose  
drainage to holding tank. Minimize water usage.  
CPEW valve V1 prior to putting system back in automatic.

Discharge will be tested for chromium, copper, nickel and zinc (heavy metal) content twice a month and pH tested twice daily.

#### 4. Sodium hydroxide (NaOH):

This system is used to neutralize the effluent at the sump. If pH monitor #1 (located in sump) reads less than a level of 8.5ph, valve SV2 is closed (NaOH) SV1 is opened (hot water). This allows NaOH discharge piping to pre-heat (NaOH must be above 58 degrees F to flow).

After 5 seconds, valve SV1 is closed and valve SV2 is opened. The amount of time that SV2 stays open is determined by the effluent controller to neutralize sump and will be discussed in the "control and monitoring" section. After 5 seconds valve SV2 is closed and SV1 is opened to allow hot water purge of P3 pump and plumbing.

The complete process of "pre-heat, neutralize and purge" is called the "TREATMENT CYCLE"

After 3 TREATMENT CYCLE(S) both SV1 and SV2 valves are returned to closed positions and pump P3 is shut off.

#### A. Refilling sodium hydroxide (NaOH) holding tank;

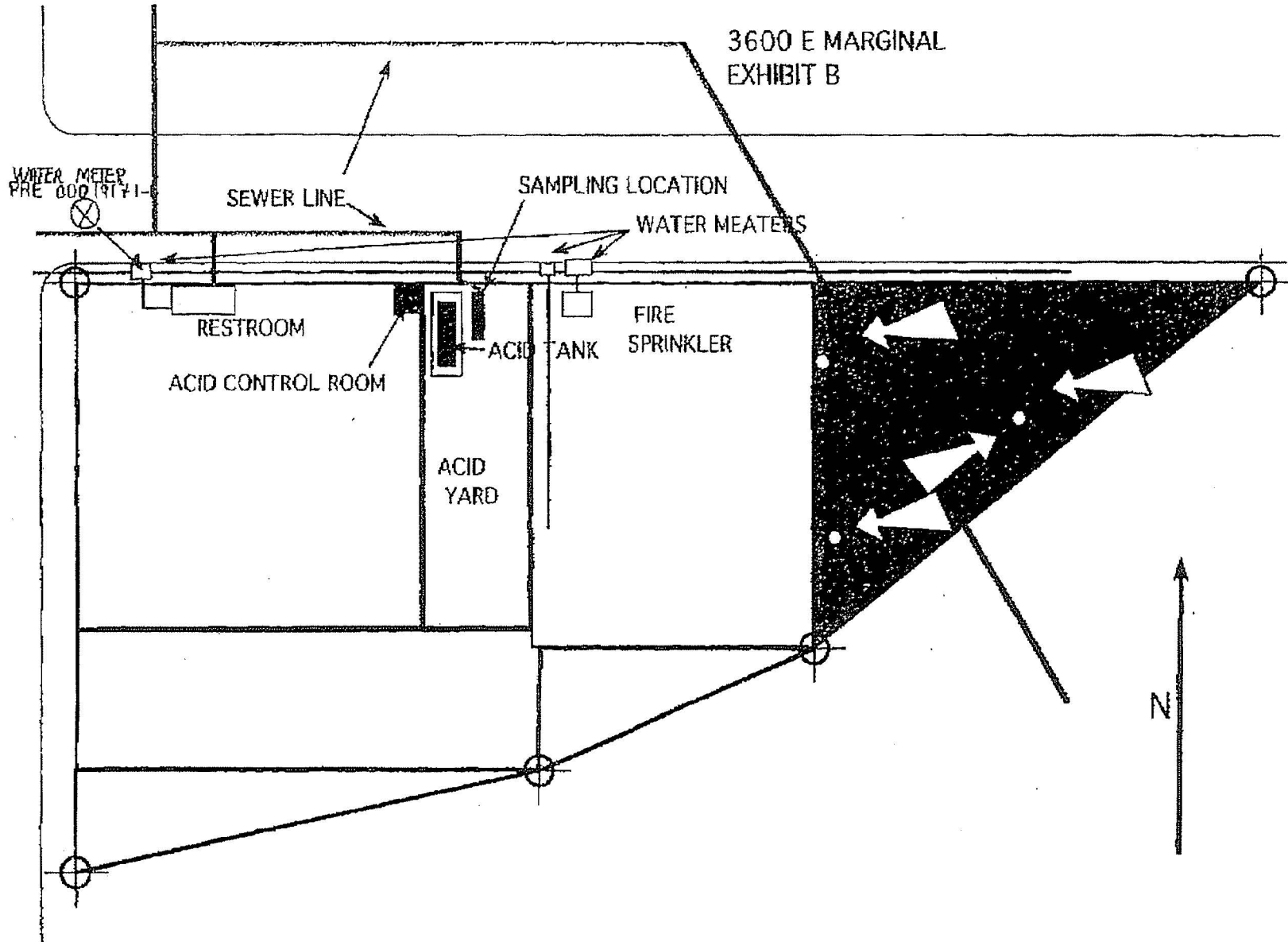
Cover yourself with the proper protective equipment, this should include (at a minimum):

Special hooded face shield.

Chemical resistant jacket and bib type pants.

Rubber boots.





**Alaskan Copper Works  
Wastewater Discharge Permit Renewal**

**Exhibit C  
Planned Changes in Pretreatment or Waste Disposal Practices**

*Not Applicable – There are No Planned Changes*

**Alaskan Copper Works  
Wastewater Discharge Permit Renewal**

**Exhibit D  
Analytical Data**

*Not Applicable – This exhibit is not required for existing dischargers applying for  
a permit renewal unless adding a new process*

Alaskan Copper Works  
3200 6th Ave South  
3600 E. Marginal Way

**Exhibit E** Spill Prevention and Containment Plan

The following is a list of names and phone numbers of who should be contacted if a spill or similar emergency occurs:

Jim Brown Operations Manager (Emergency Coordinator)	Office: 206-623-5800 ext 6573 Cellular: 206-793-3430 Home: 253-631-7134
Peter Monsaas Maintenance Superintendent	Office: 206-382-8224 Home: 206-783-5554
Ron Lohse Maintenance Supervisor	Office: 206-382-6569 Home: 206-763-2412
Gerald Thompson Maintenance Specialist	Office: 206-382-6569 Home: 253-952-0282

**Major Chemicals and Metal Wastes at Alaskan Copper and Brass**

Manufacturing activities at Alaskan involve the use of chemicals such as strong acids for passivating. Chemicals used in, and metal wastes resulting from, these operations are described below for each buildings 3200 and 3600.

Passivating Process

Passivating bath acid, (Nitric Acid and Ammonium Bifluoride)

Oakite M3 (75% sodium hydroxide)

The following table lists chemicals that Alaskan may have on site at some time at or above the associated RQ.

Product	Constituent	Percent	Designation	RO
Oakite	Sodium Hydroxide	75%	HS	1,000 lbs
Nitric Acid solution	Nitric Acid	68%	EHS	1,000 lbs
Sodium Hydroxide		50%	EHS	1,000 lbs

Passivating Area

The Passivating Areas are housed in buildings 3200 & 3600. Stainless steel pipe is dipped in a 10% nitric acid bath followed by a water rinse bath. A filter press is used for collecting and draining sludge. The sludge is hazardous and disposed of properly. The neutralizing control center for the acid is located just inside the building near the Passivating Area. The neutralizing control center consists of a collection pit, two holding

tanks, and an automatic treatment control system. Small parts are cleaned in the oakite stripping tank, located near the acid bath.

Emergency prevention equipment found in this area includes:

- Safety Glasses

- An alarm in the neutralizing center that sounds when there is a system malfunction

- Containment walls around the acid baths

Signs reading "Danger, Handling Chemicals" are used when acid in the baths is being charged. A first aid station is located in the office area. Eye wash systems and showers are in the process area and neutralizing control center.

A regular maintenance program is in place to ensure that equipment is functioning properly and to inspect for potentially dangerous situations such as leaks. Please find attached Figure 3-6 of Alaskan Copper Contingency Plan is an inspection form used to document inspections of the area.

Please review Exhibit B of both requests for Metro permits for buildings 3200 and 3600 which shows that the layout of the Passivating Area is open for easy access and escape in an emergency at both buildings.

#### Chemical Control Area

The chemical control area is located behind building 628. This area is where chemicals are stored when not in use in other areas of the facility. Sodium hydroxide, oil products, and wastes awaiting characterization and disposal are kept here. Storage bins of janitorial and office supplies are also in this area. This area is 90 square feet.

The locker that sodium hydroxide is stored in has a grated floor throughout, a catch basin under the storage locker where barrels are kept, and proper labeling of those barrels, even when empty. The inside of the locker is burned.

The oakite used in this process is stored in Bldg 3200 and 3600; is added to the stripping tank as needed by the senior operator in the area. The nitric acid is ordered and used as soon as it's brought on to the property.

#### Training

The Emergency Coordinator, Alternate Emergency Coordinator, and supervisors at Alaskan Copper and Brass are trained on the contents of the Contingency Plan including:

- Wastes in each area of the facility

- Waste handling procedures

- General spill response guidelines

- Possible dangerous contaminants

- What to do when dangerous wastes are discovered

- Not to mix dangerous and non-dangerous wastes

- What to do in case of a spill

All other personnel receive a brief overview of the importance of Material Safety Data Sheets and their contents during orientation. At a later date personnel receive a hour block of instruction which includes two videos covering MSDS's and labels used on chemical products.

Please find attached Figure 5-7 of Alaskan Copper's Contingency Plan which depicts the form used to document training of all other personnel.

#### **Emergency Personnel**

Alaskan Copper and Brass has designated personnel to respond to emergency situations, including Emergency Coordinator.

#### **Responsibilities of the Facility Emergency Coordinator**

The Emergency Coordinator is responsible for coordinating all planning and readiness activities before emergency occurs and all response activities during an emergency.

Pre-emergency planning consists of the following activities:

- Updating the facilities contingency plan.
- Ensuring that all required emergency response equipment is present and in good working order.
- Coordinate training of personnel who handle hazardous chemicals at the facility.

In the event of an emergency, responsibilities of the Emergency Coordinator include:

- Assessing hazards.
- Monitoring potentially hazardous situations.
- Identifying materials involved in a release.
- Notifying facility personnel in the event of an emergency.
- Making sure any injured personnel get medical treatment.
- Coordinating response efforts.
- Contacting off-site emergency personnel.
- Coordinating necessary evacuations.
- Properly managing all recovered materials and wastes.
- Ensuring that all equipment is returned to proper working order.
- Providing proper notification (verbal or written) to all appropriate agencies.
- Records all incidents at the facility.

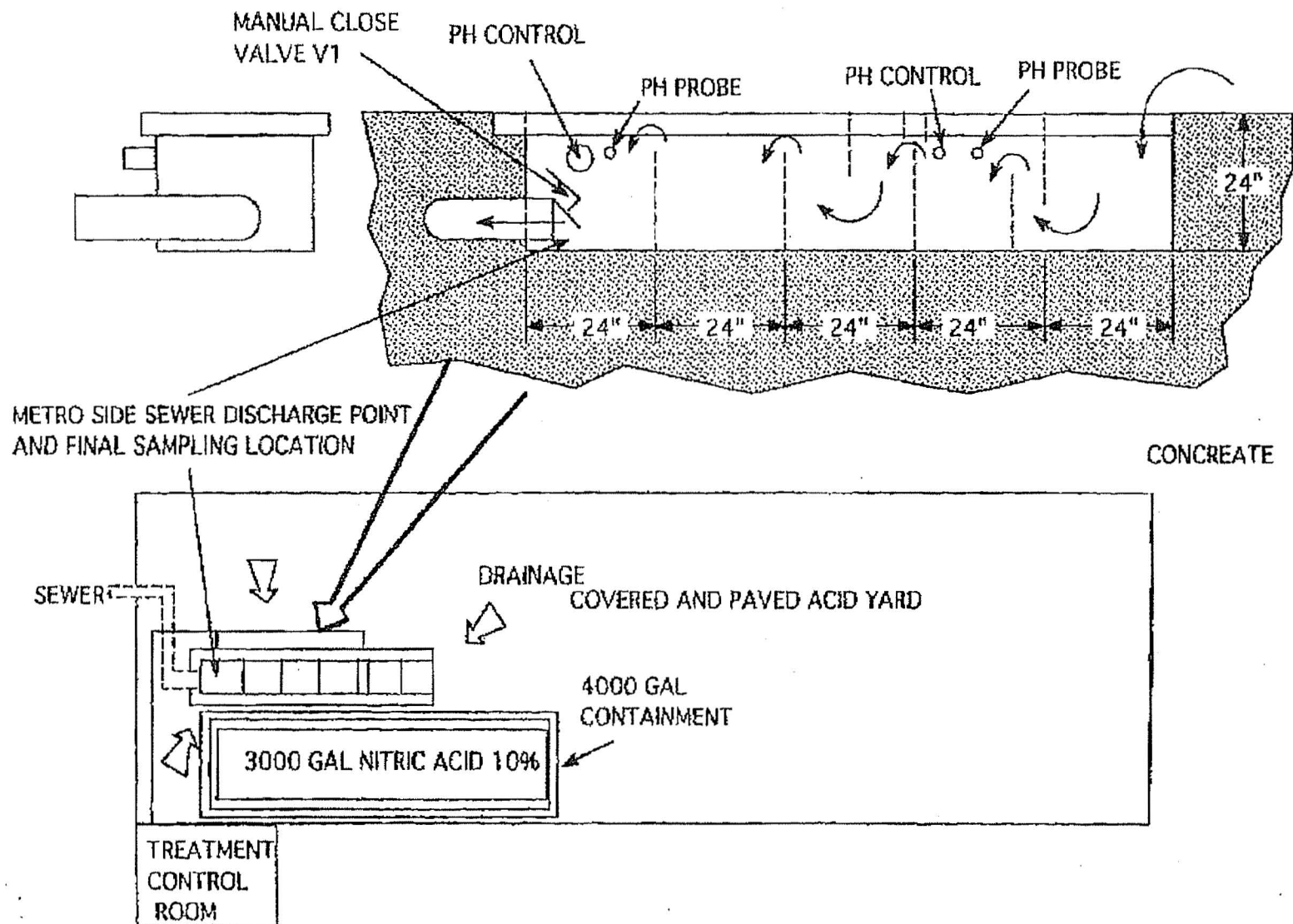
#### **Emergency Response Equipment**

Although most fires, spills and explosions at Alaskan will be handled by outside emergency responders, following emergency response equipment is maintained at the facility to respond to, and contain emergency situation until outside help arrives.

- Spill Absorbent Materials
- Fire Extinguishers
- Walkie Talkies
- PA system

EXHIBIT A PROCESS #1  
EXHIBIT F

# PROCESS SUMP 3600 E MARGINAL



**Figure 3-6**

# MAINTENANCE WORK ORDER

CATEGORY:

APPV'D:

ACCOUNT #:

CHARGEABLE:

EMPL #3:

REASON:

CLOSED:

TOTL:

TOTL:

TYPE/CODE OF WORK  
REQUIRED

:

:

DATE: / /



Emergency Prevention

Figure 3-7

ALASKAN COPPER & BRASS COMPANY  
ALASKAN COPPER WORKSCHEMICAL HAZARD COMMUNICATION PROGRAM  
TRAINING CERTIFICATION

I have received Hazard Communication Training as described in the Hazard Communication Program. This training was conducted on the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

Work Area (check the appropriate area)

\_\_\_\_\_ 3223 6th Ave South  
\_\_\_\_\_ 3301 6th Ave South  
\_\_\_\_\_ 628 So. Hanford  
\_\_\_\_\_ 2958 6th Ave South  
\_\_\_\_\_ 3200 6th Ave South  
\_\_\_\_\_ 3317 6th Ave South  
\_\_\_\_\_ 3405 6th Ave South  
\_\_\_\_\_ 3600 E. Marginal Way

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Social Security Number

I hereby certify that the above named employee has been provided with Hazard Communication Training on \_\_\_\_\_ (Date).

\_\_\_\_\_  
Instructor's Signature

3-12

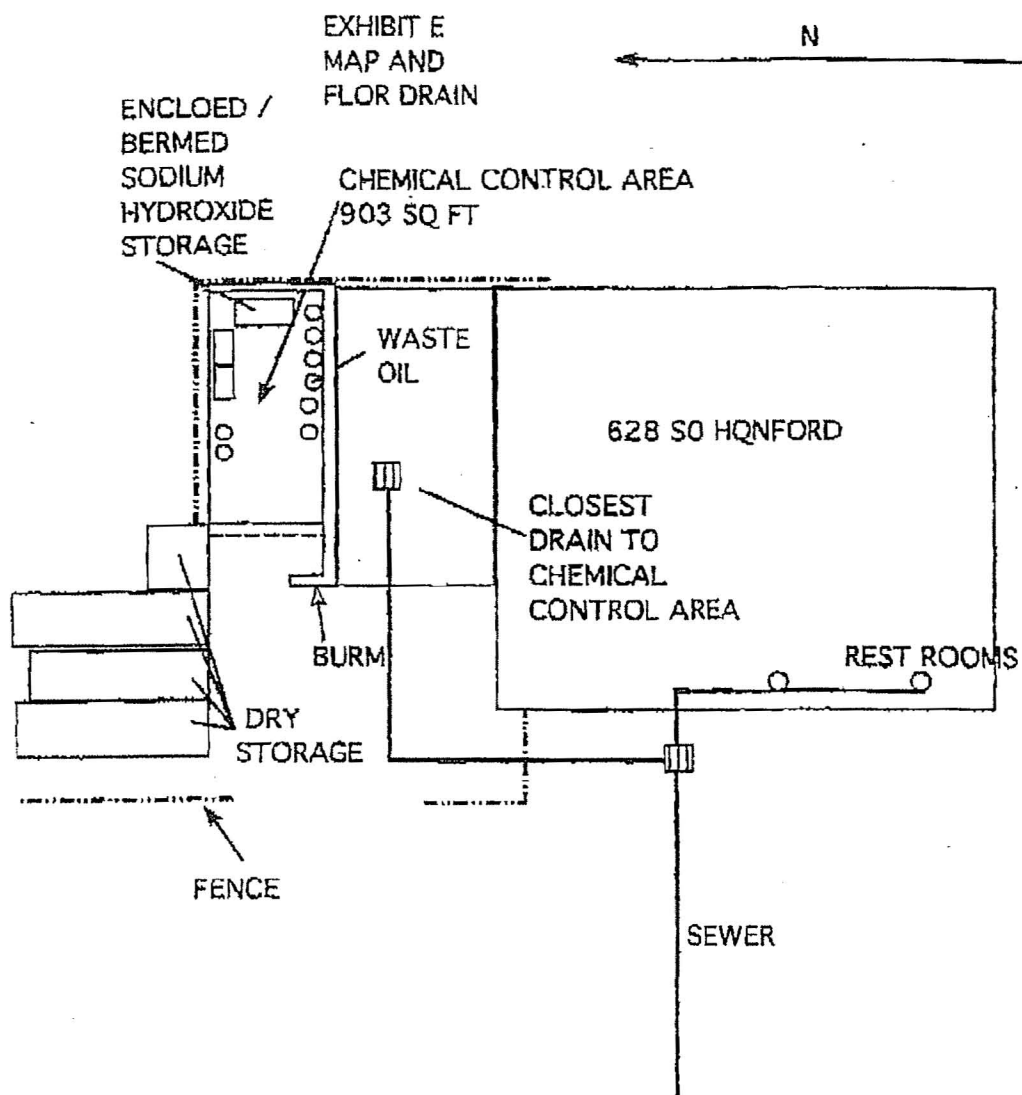
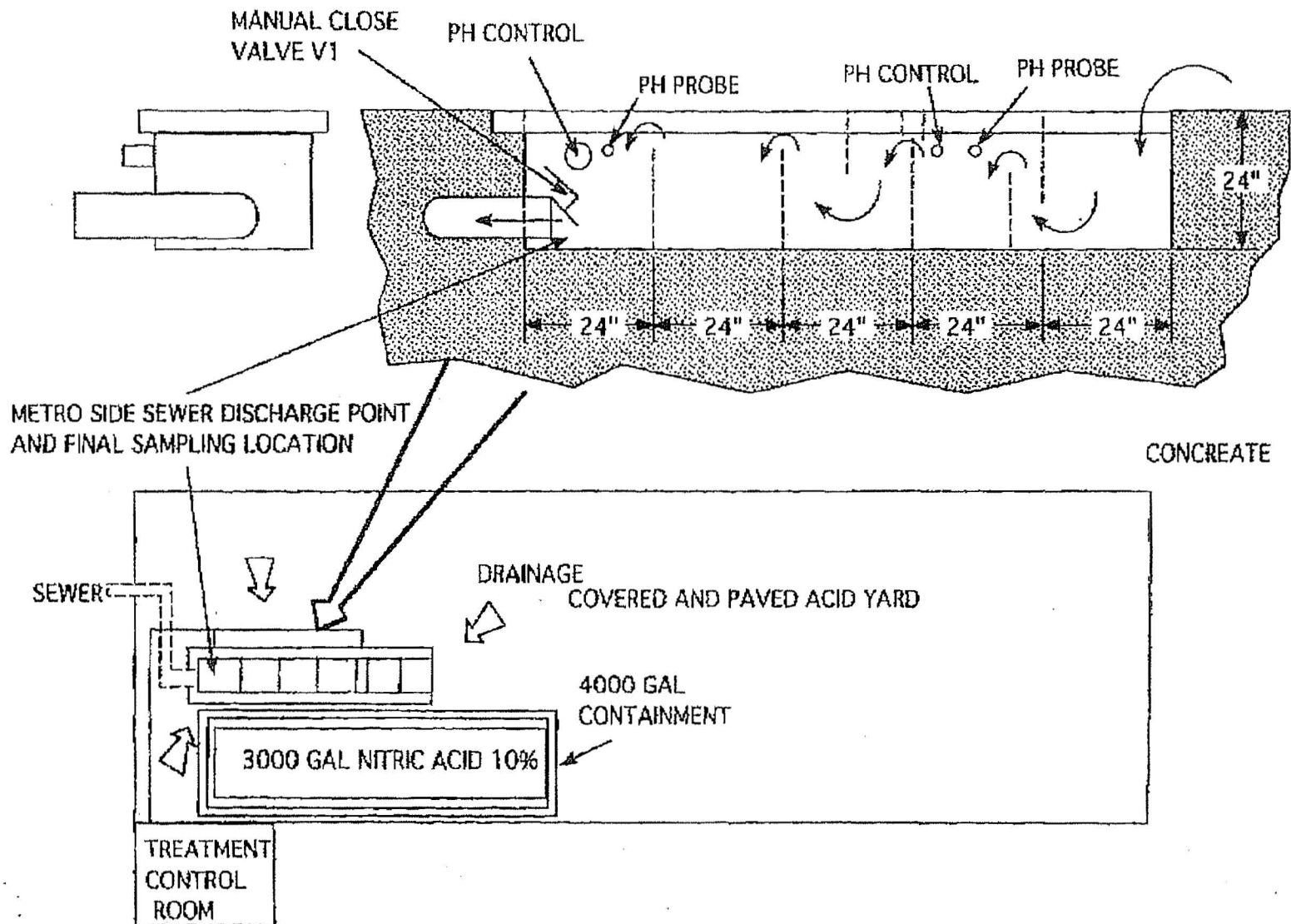


EXHIBIT A PROCESS #1  
EXHIBIT F

# PROCESS SUMP 3600 E MARGINAL



## EXHIBIT I

Documentation of water balance calculation

### ALASKAN COPPER WORKS

#### 3600 E MARGINAL

This site is currently not in use. The true flow is zero gal/day. There currently are no employees on sight performing work for Alaskan Copper Works. The tank is empty. This site is a backup site to be used in times of excess capacity for the 3200 6<sup>th</sup> ave. site. Utility bills attached reflect the current tenant on site doing work in other areas unrelated to this processing site.

#### Industrial processing / wastewater

Determined by – flow meter average: 5 gal/day, Maximum = 1000 gal/day

#### Sanitary water/waste

Average number of employees on site is 2; times 25 gal = 50 gal/day

Maximum number of employees on site is 3; time 25 = 75gal/day

#### Storm water

The square foot of 3600 E Marginal is 44,610 sq ft

The average yearly rainfall for the Seattle area is 3 ft

The average daily rainfall for the Seattle area is .10 in or .008 ft

The average daily volume is  $.008 \times 44,610 \text{ sq ft} = 356.88 \text{ cu ft}$

$356 \text{ cu ft} \times 7.48 \text{ gal/cu ft} = 2669 \text{ gal/day}$